Role of Mobility in Livable Communities

Sustainability

Climate Change

Smart Growth

Recession

Energy

Public Health

Safety

Congestion

?
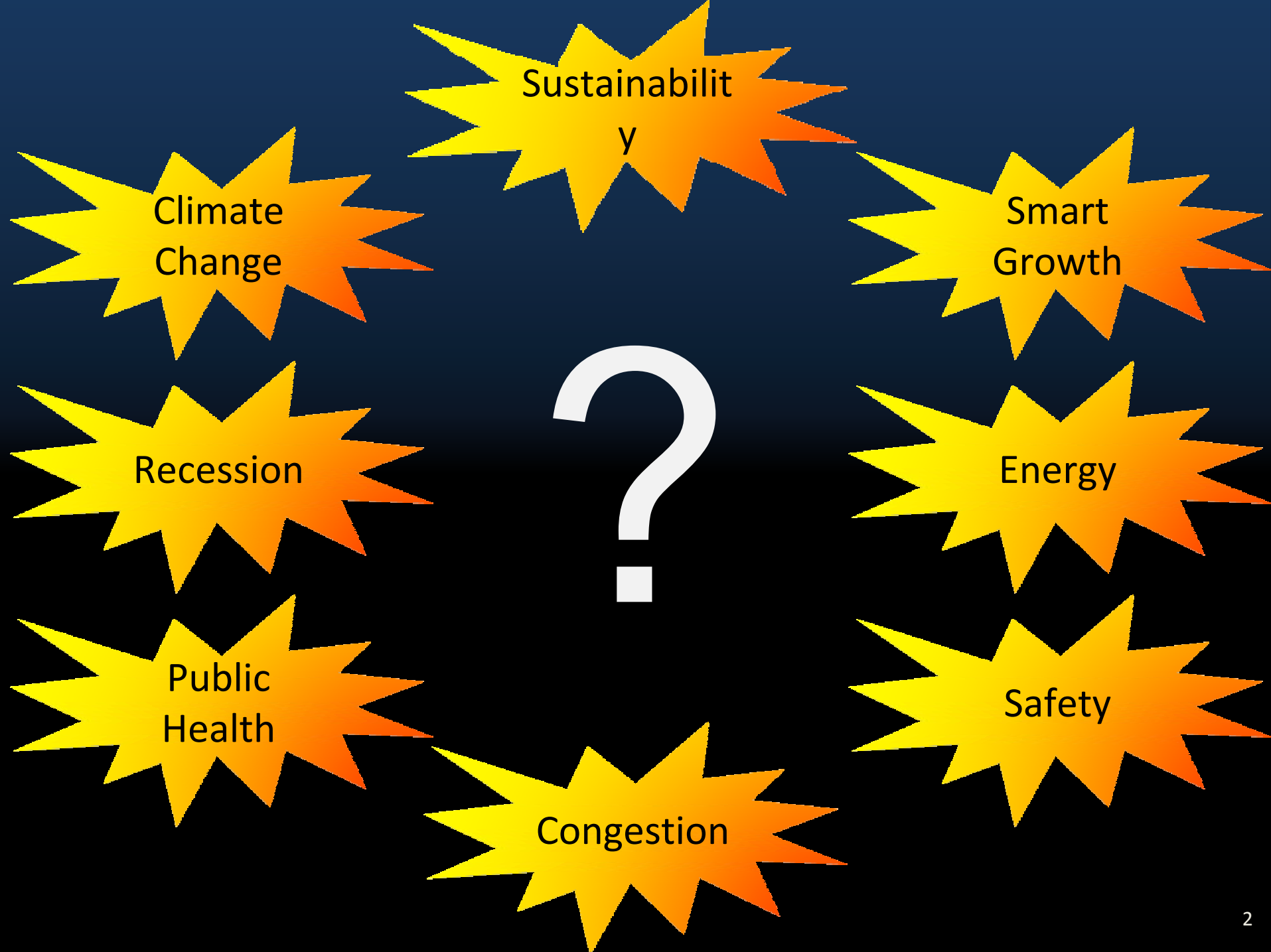
Mobility + Livable Communities

- 3 Key Concepts
- Example: Senior Mobility

1

Mobility

Livability

Location Efficiency
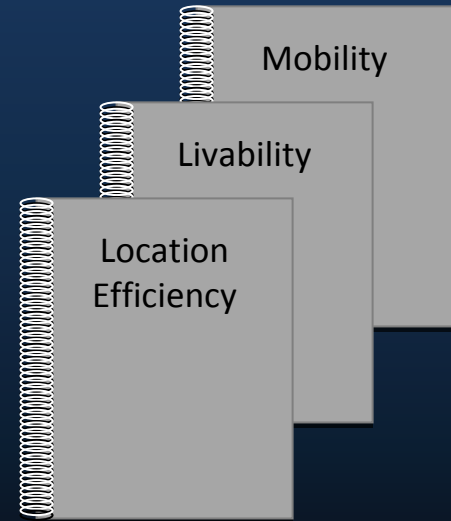
3 Key Concepts

"Location Efficiency"

Spatial Relationships

Community

Region

Neighborhood

Home

"Location Efficiency" =

Complete Neighborhoods + Regional Access

the neighborhood

- ¼ mile radius
- 160 – 200 acres

Graphic: Doug Farr, Sustainable Urbanism
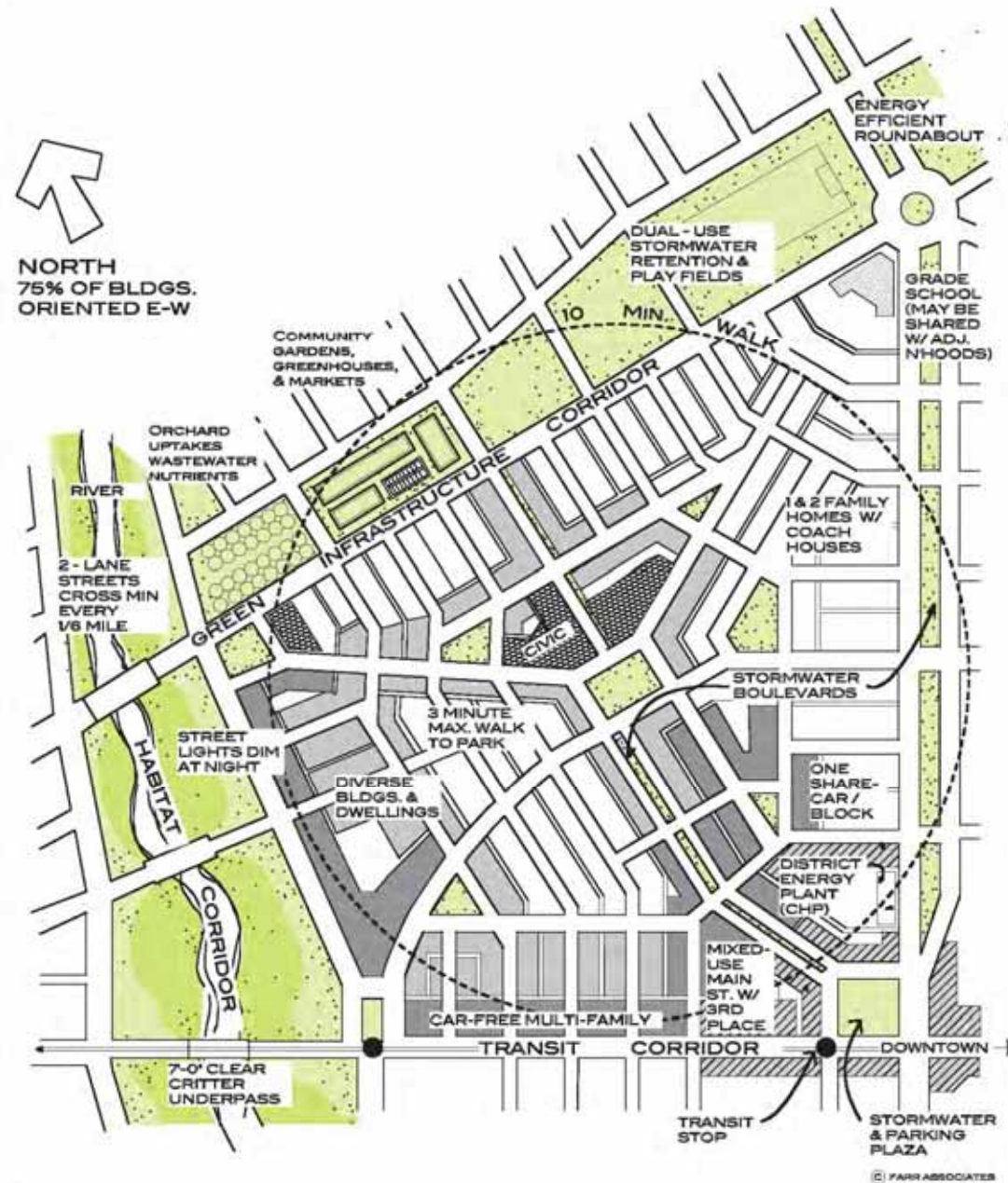

AREA: PREFERABLY 160 ACRES, MIN. 40, MAX. 200
POPULATION: TO SUPPORT CRITICAL MASS OF WALK-TO DESTINATIONS.

NORTH
75% OF BLDGS.
ORIENTED E-W

ENERGY EFFICIENT ROUNDABOUT

DUAL-USE STORMWATER RETENTION & PLAY FIELDS

GRADE SCHOOL (MAY BE SHARED W/ ADJ. NHOODS)

COMMUNITY GARDENS, GREENHOUSES, & MARKETS

10 MIN. WALK

INFRASTRUCTURE CORRIDOR

GREEN

ORCHARD UPTAKES WASTEWATER NUTRIENTS

RIVER

2-LANE STREETS CROSS MIN EVERY 1/6 MILE

1 & 2 FAMILY HOMES W/ COACH HOUSES

CIVIC

STORMWATER BOULEVARDS

3 MINUTE MAX. WALK TO PARK

STREET LIGHTS DIM AT NIGHT

DIVERSE BLDGS. & DWELLINGS

ONE SHARE-CAR / BLOCK

HABITAT

CORRIDOR

DISTRICT ENERGY PLANT (CHP)

MIXED-USE MAIN ST. W/ 3RD PLACE

CAR-FREE MULTI-FAMILY

TRANSIT CORRIDOR

DOWNTOWN

7'-0" CLEAR CRITTER UNDERPASS

TRANSIT STOP

STORMWATER & PARKING PLAZA

© FARR ASSOCIATES

A SUSTAINABLE NEIGHBORHOOD (BUILDING BLOCKS OF A SUSTAINABLE CORRIDOR

the complete neighborhood

- schools
- local retail
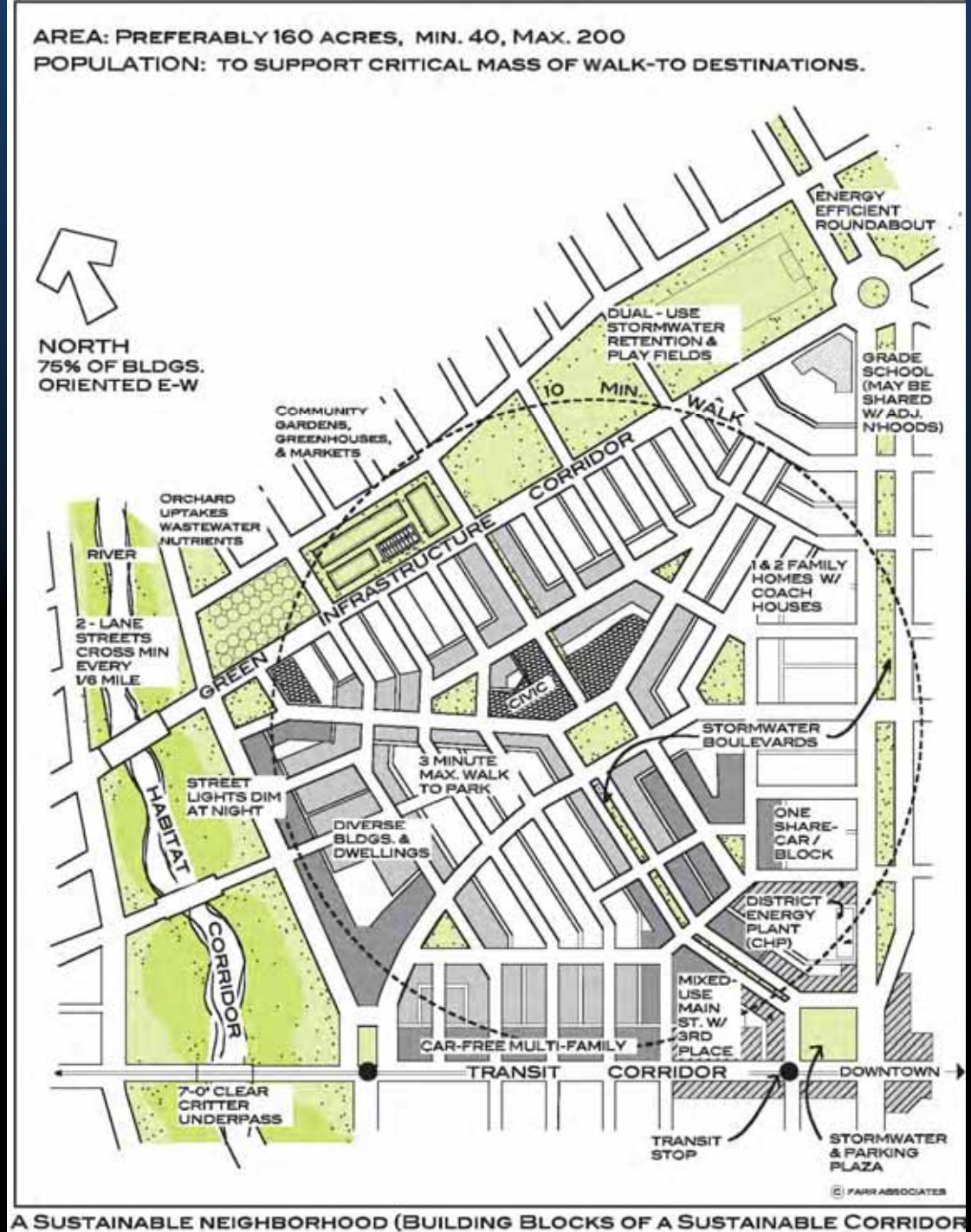- services
- parks
- diverse housing
- transit

Graphic: Doug Farr, Sustainable Urbanism

AREA: PREFERABLY 160 ACRES, MIN. 40, MAX. 200
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TRANSIT STOP

STORMWATER & PARKING PLAZA

© FARR ASSOCIATES

A SUSTAINABLE NEIGHBORHOOD (BUILDING BLOCKS OF A SUSTAINABLE CORRIDOR)

the complete neighborhood

- walkable
- mixed-use
- transit-served

AREA: PREFERABLY 160 ACRES, MIN. 40, MAX. 200
POPULATION: TO SUPPORT CRITICAL MASS OF WALK-TO DESTINATIONS.

NORTH
75% OF BLDGS.
ORIENTED E-W

ENERGY EFFICIENT ROUNDABOUT

DUAL-USE STORMWATER RETENTION & PLAY FIELDS

GRADE SCHOOL (MAY BE SHARED W/ ADJ. N'HOODS)

COMMUNITY GARDENS, GREENHOUSES, & MARKETS

ORCHARD UPTAKES WASTEWATER NUTRIENTS

RIVER

2-LANE STREETS CROSS MIN EVERY 1/6 MILE

GREEN INFRASTRUCTURE CORRIDOR

1 & 2 FAMILY HOMES W/ COACH HOUSES

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STORMWATER BOULEVARDS

STREET LIGHTS DIM AT NIGHT

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HABITAT CORRIDOR

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DOWNTOWN

7-0' CLEAR CRITTER UNDERPASS

TRANSIT STOP

STORMWATER & PARKING PLAZA

© FARR ASSOCIATES

A SUSTAINABLE NEIGHBORHOOD (BUILDING BLOCKS OF A SUSTAINABLE CORRIDOR

Graphic: Doug Farr, Sustainable Urbanism

"Location Efficiency" =

Complete Neighborhoods + Regional Access

Regional Accessibility

Place Types
* from EPA/Caltrans work

Complete, Accessible

- Urban centers
- Core neighborhoods
- Walkable places
- Good public health
- Great transit
- Good access to jobs
- Low oil dependency
- High housing costs

HIGH

Neighborhood Completeness

LOW

HIGH

Regional Accessibility

Complete, Low Accessibility

- Stand-alone cities
- Intact rural towns
- Walkable places
- Good public health
- Limited local transit
- Limited access to jobs
- Lower housing costs

Neighborhood Completeness

HIGH

LOW

Regional Accessibility

LOW · HIGH

Incomplete, Accessible

- First tier suburbs
- Connected sprawl
- Few walkable places
- Poor public health
- Fair to good transit
- Good access to jobs
- Higher housing costs

Neighborhood Completeness

HIGH

LOW

Regional Accessibility

LOW   HIGH
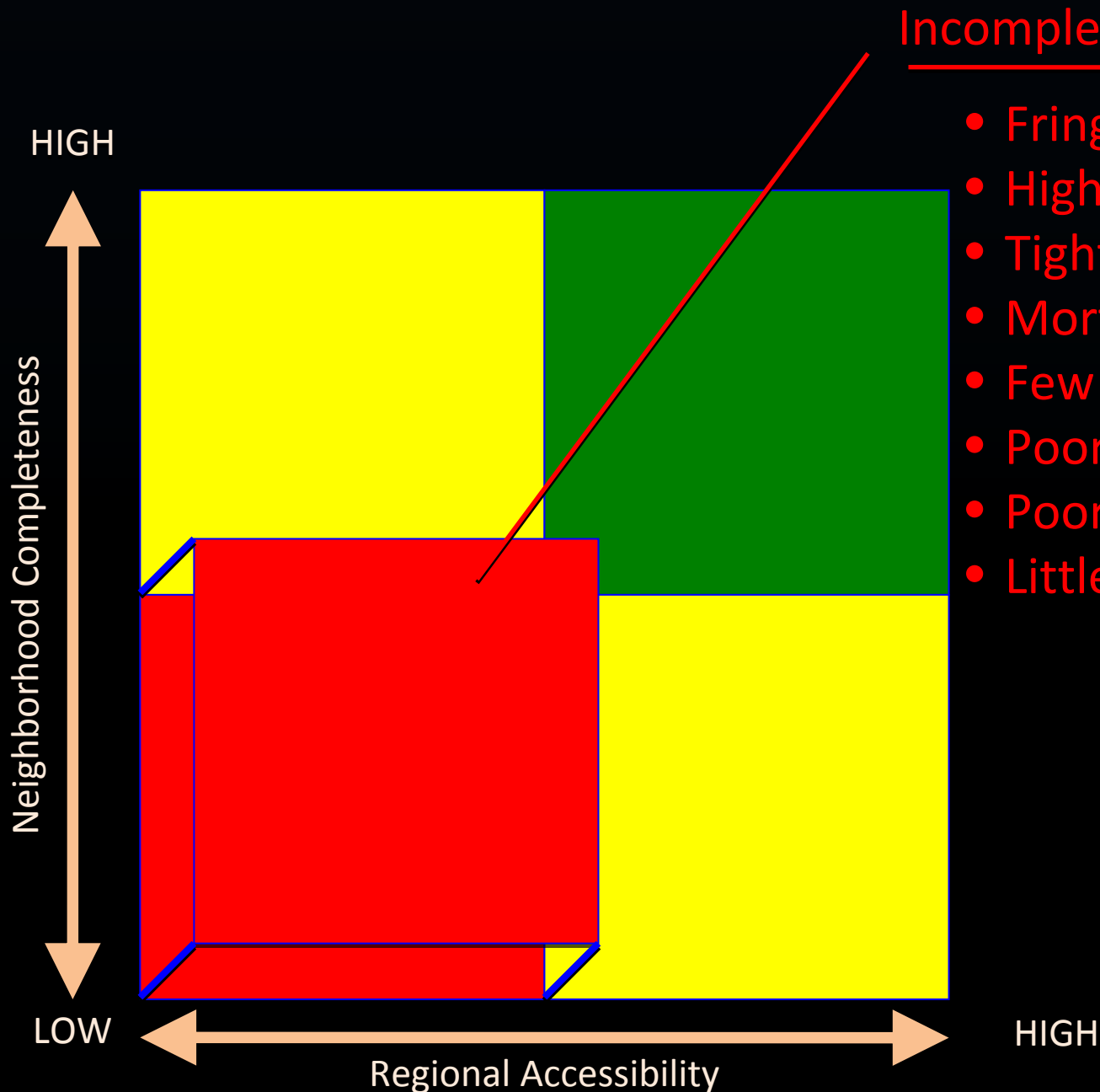
Incomplete, Low Accessibility

- Fringe & exurban sprawl
- High oil dependency
- Tight household budgets
- Mortgage foreclosures
- Few walkable places
- Poor public health
- Poor access to jobs
- Little or no transit

Neighborhood Completeness

HIGH

LOW

Regional Accessibility

LOW   HIGH

Location Efficiency Outcomes

- VMT per capita
- Access to daily household needs
- Walkability, active living
- Household transportation costs
- Business transportation costs
- Economic viability
- Access to jobs & opportunities

"Location Efficiency" =

Complete Neighborhoods + Regional Access

"Livability"

"Livability" =

Affordable + Healthy + Opportunities + Identity

household economics

Sales

needed for:
- housing
- transportation

available for:
- food
- health care
- education
- consumer expenditures
- recreation
- savings
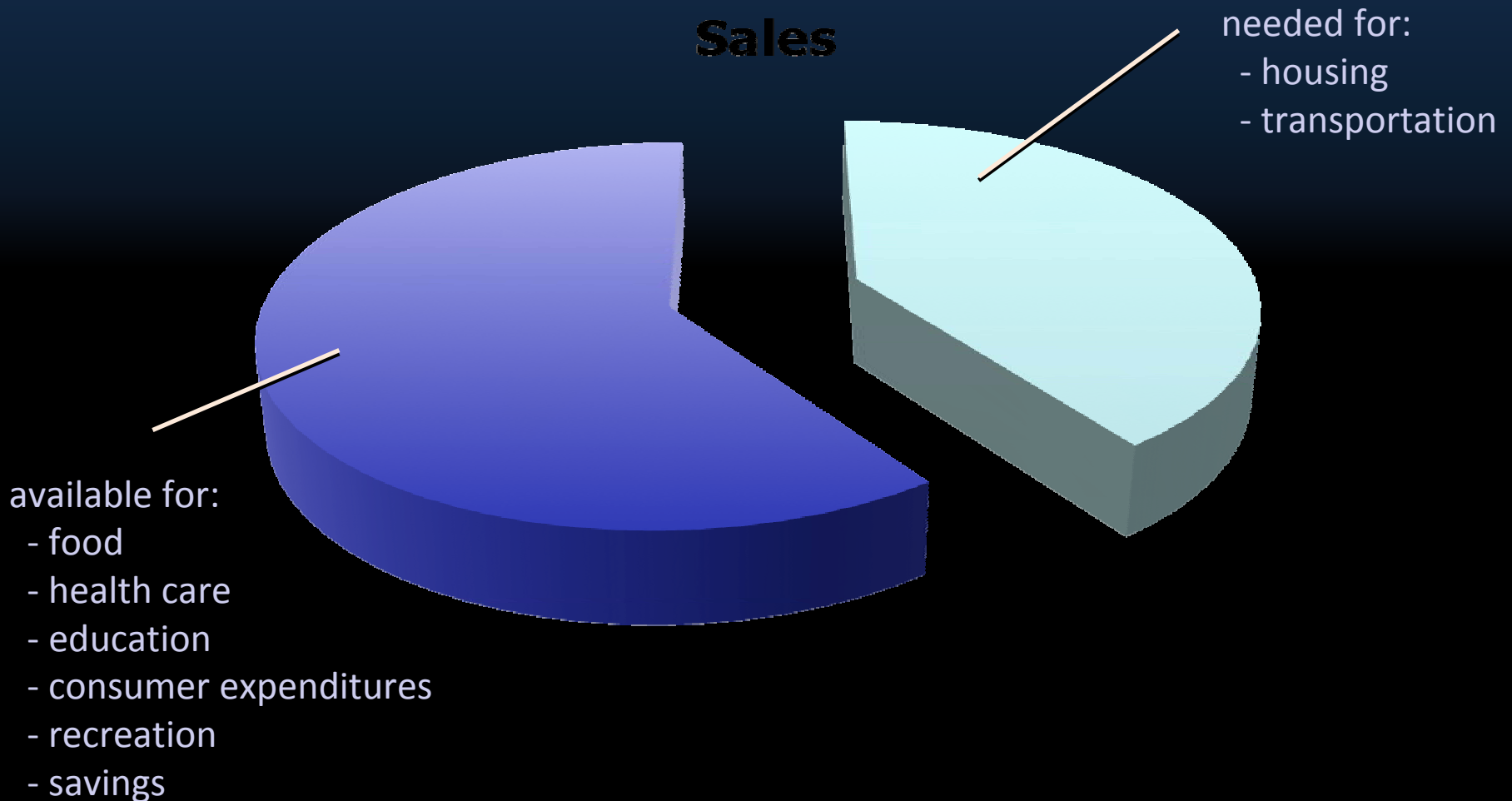
share of family income spent on housing & transportation

family income = $35,000 - $50,000

| housing | transportation |

	housing	transportation	
central city	23 %	16 %	39 %
near jobs	26 %	23 %	49 %
away from jobs	25 %	26 %	51 %
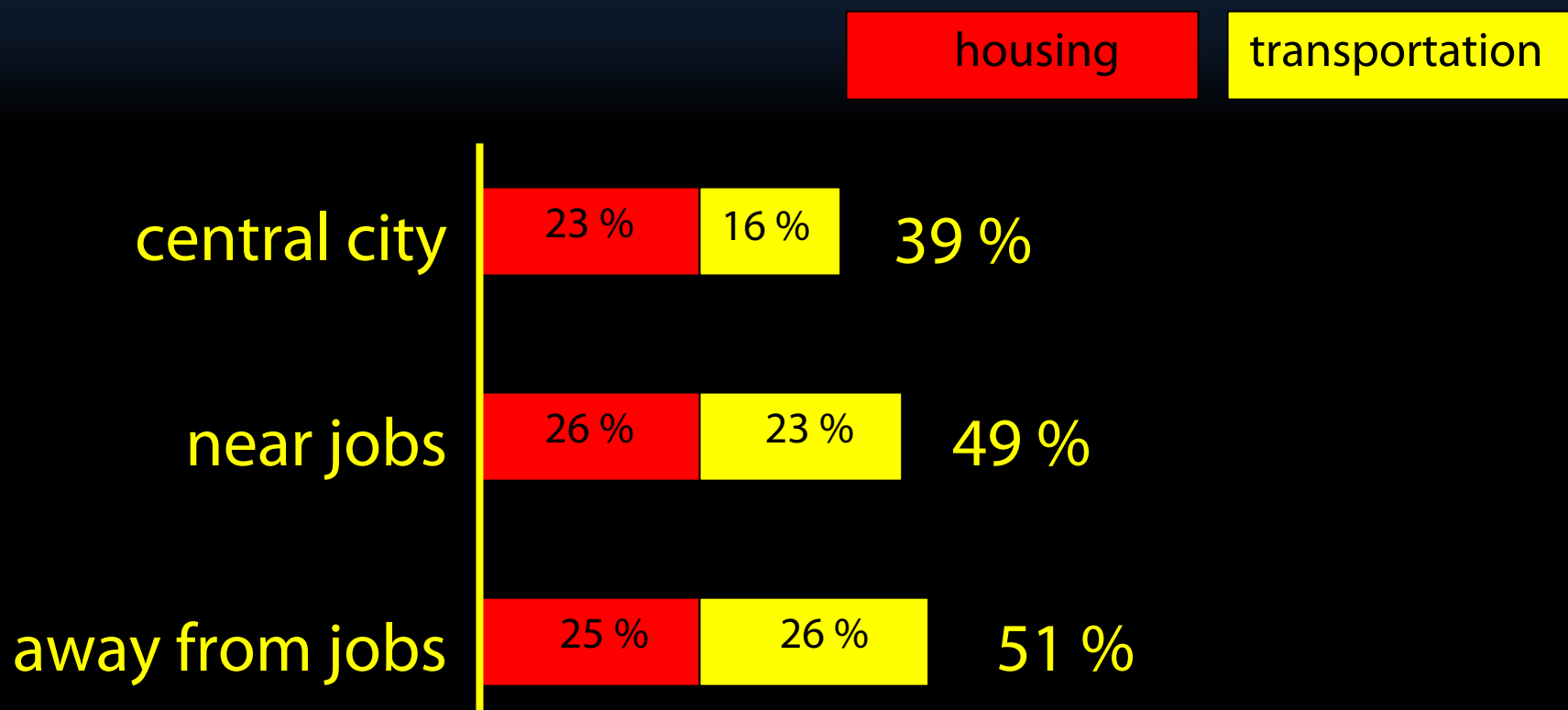
share of family income spent on housing & transportation

family income = $20,000 - $35,000

| | housing | transportation |

central city — 32 % | 22 % — 54 %

near jobs — 35 % | 31 % — 66 %

away from jobs — 33 % | 37 % — 70 %

Source: A Heavy Load, Center for Neighborhood Technology

household economics

Sales

needed for:
- housing
- transportation

available for:
- food
- health care
- education
- consumer expenditures
- recreation
- savings

CU class estimate

household economics

Sales

needed for:
 - housing
 - transportation

available for:
 - food
 - health care
 - education
 - consumer expenditures
 - recreation
 savings

actual for many working families

Impact on Local Economies

How much household income is left for:

FOOD	…cheaper, less nutritious foods
HEALTH CARE	…less insurance, less preventive care
EDUCATION	…less higher education
SHOPPING	…lower sales tax receipts
RECREATION	…less sports activity, less exercise
SAVINGS	…lower savings rate, higher cost of capital

"Livability" =

Affordable + Healthy + Opportunities + Identity

US Health Care % of GDP

									transportation
5.1	7.0	8.8	12.1	14.1	16.3	19.5	> 20		9.5
1960	1970	1980	1990	2001	2007	2017	2020		2008

29
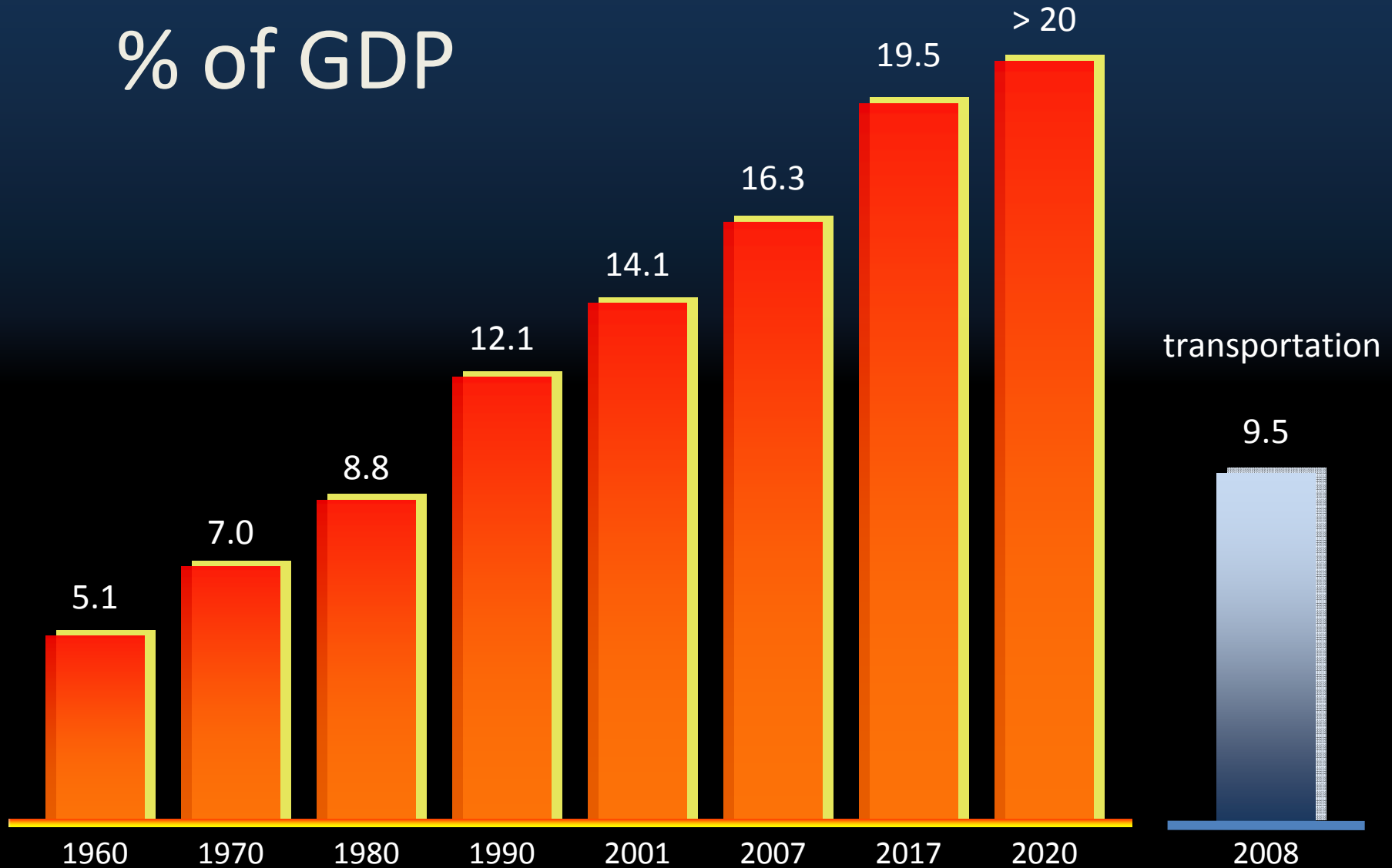
Annual Health Care Costs/Capita
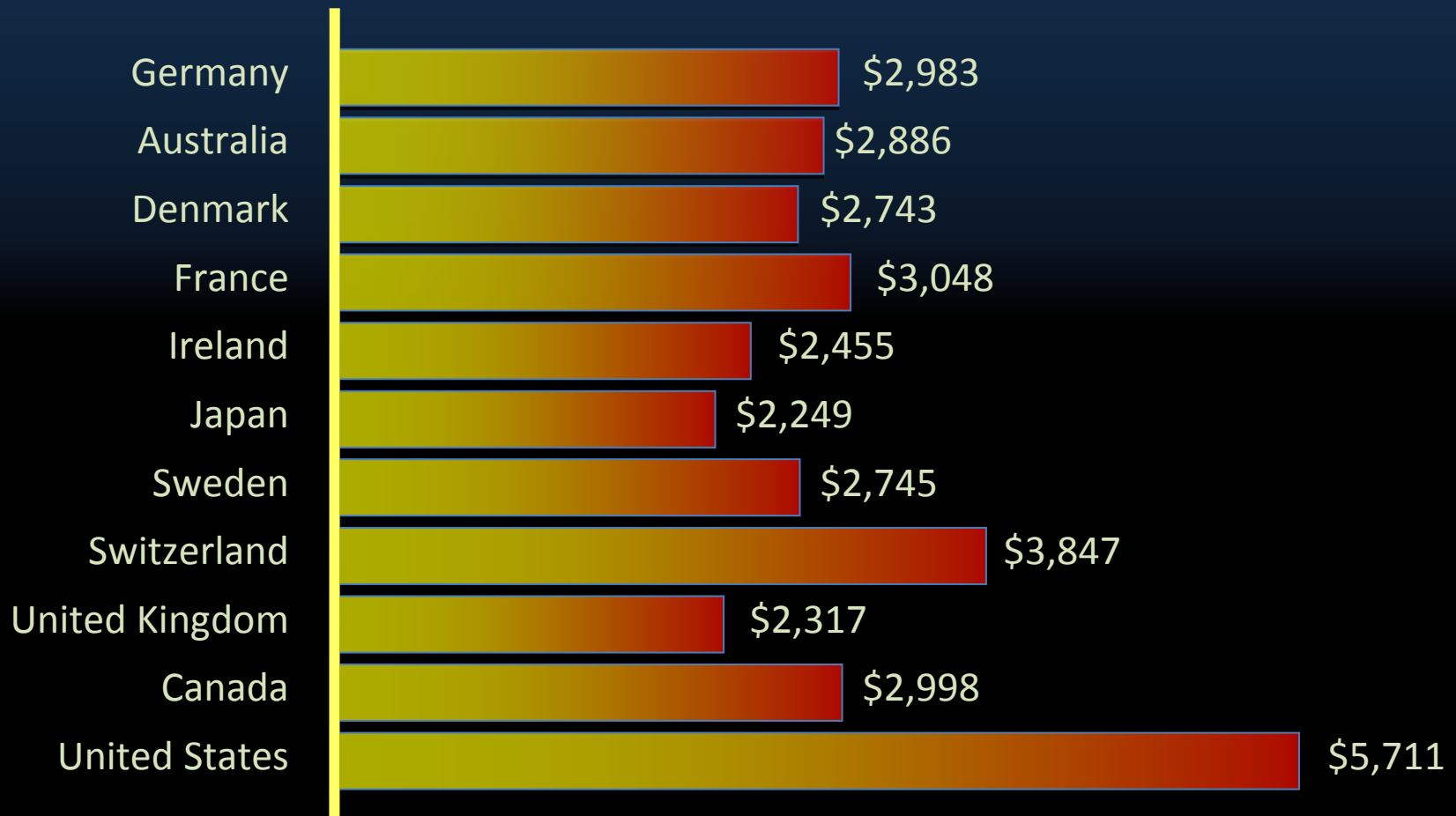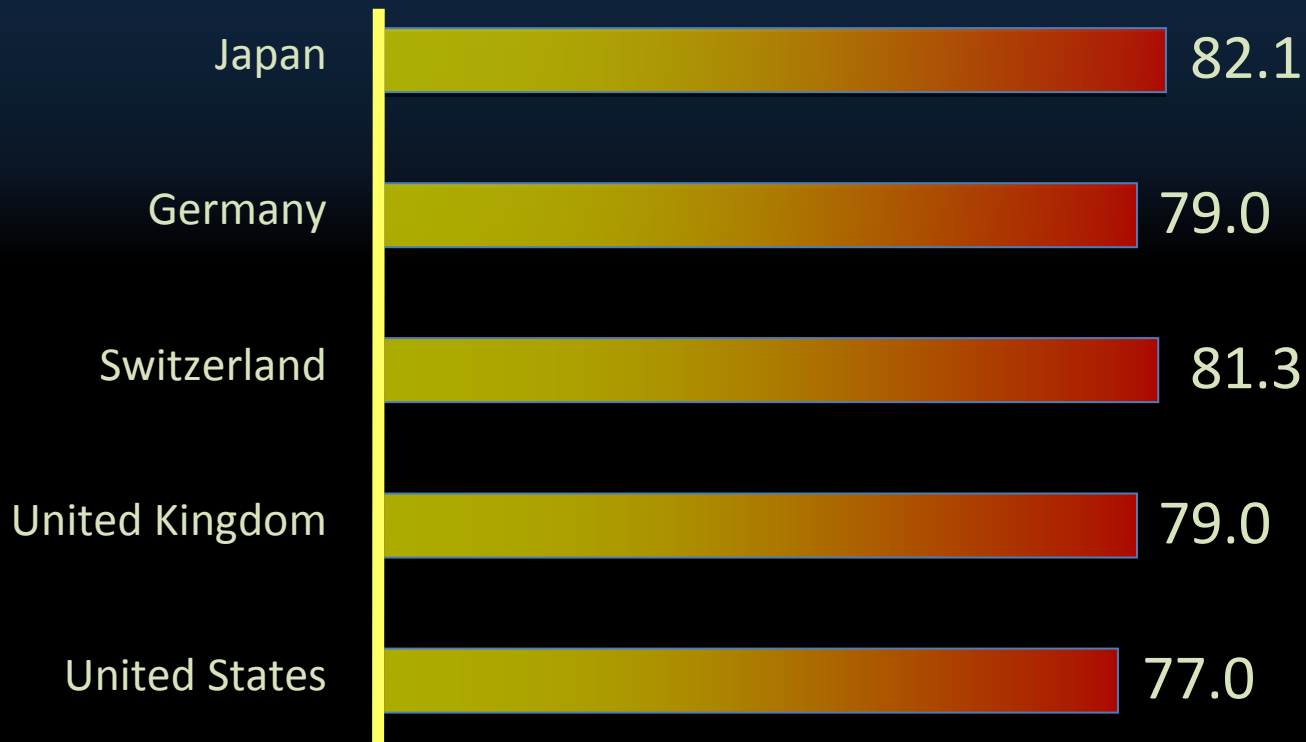
Country	Cost
Germany	$2,983
Australia	$2,886
Denmark	$2,743
France	$3,048
Ireland	$2,455
Japan	$2,249
Sweden	$2,745
Switzerland	$3,847
United Kingdom	$2,317
Canada	$2,998
United States	$5,711

Average Life Expectancy

Country	Average Life Expectancy
Japan	82.1
Germany	79.0
Switzerland	81.3
United Kingdom	79.0
United States	77.0

Scale – United States Economy

($ Billions/Year)

Chart showing: Cost of obesity $ 147; Cost of traffic air pollution $ 80; Cost of traffic accidents $ 180.

Scale – United States Economy

($ Billions/Year)

$ 407

$ 199

Transportation impact on public health

Public sector transportation expenditures
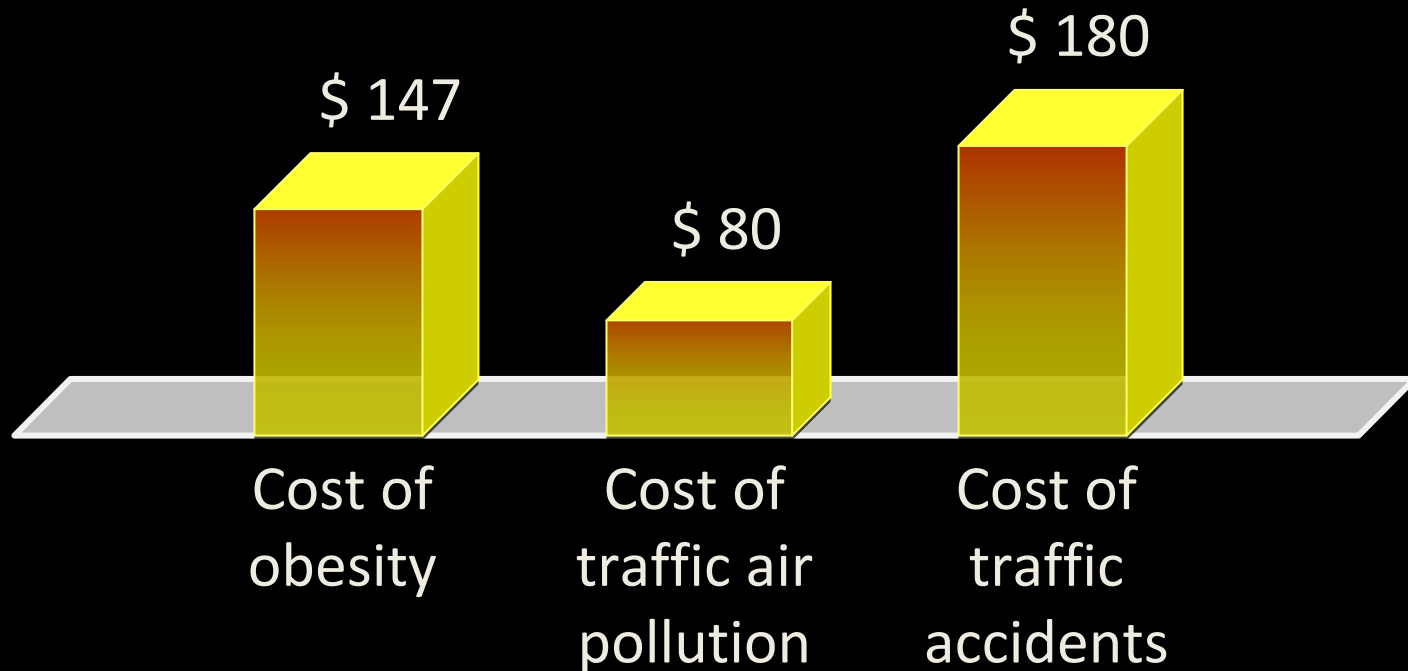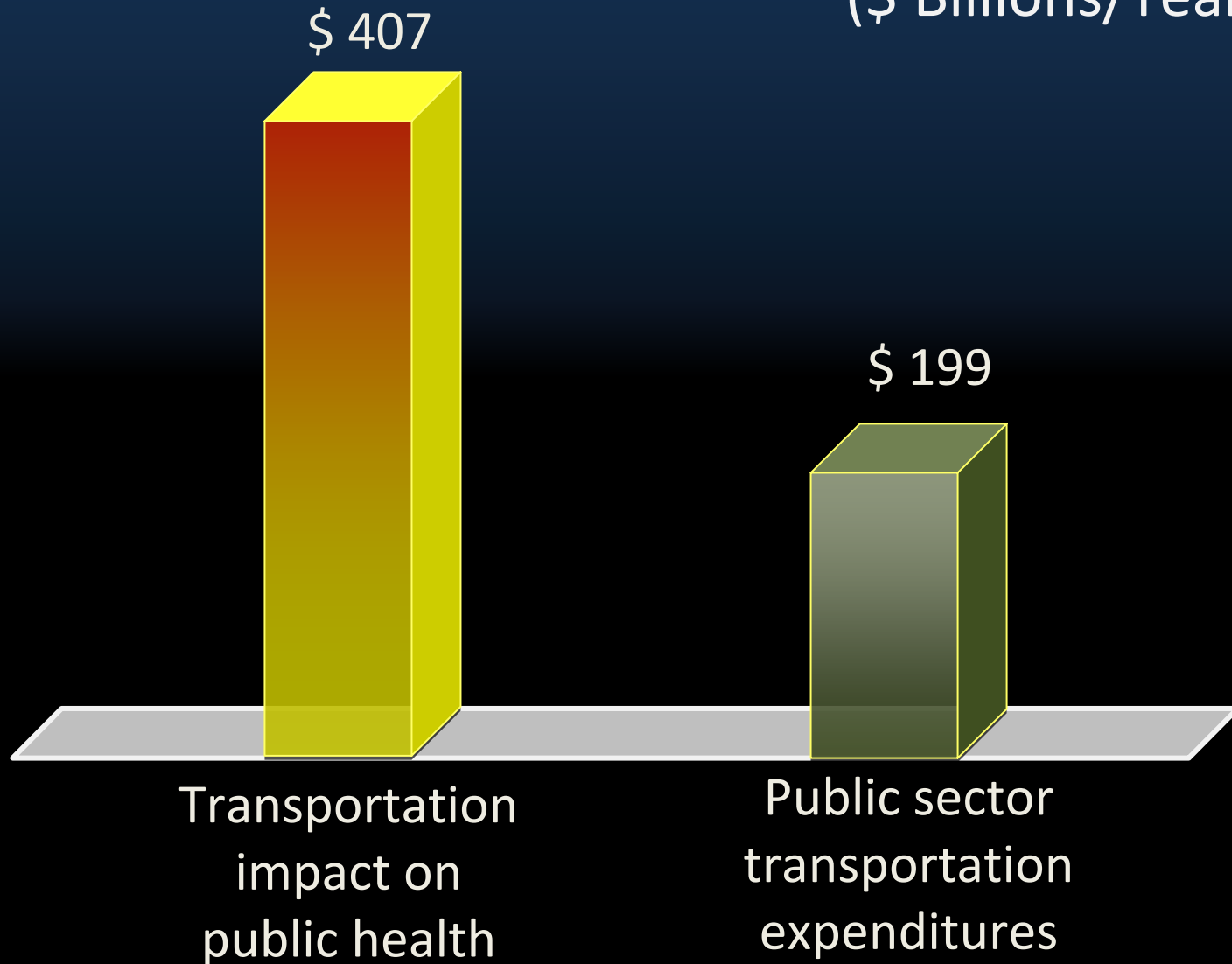
Transportation & Public Health

Traffic Safety ✚ Personal Health

07.28.2006

Annual US Traffic Fatalities
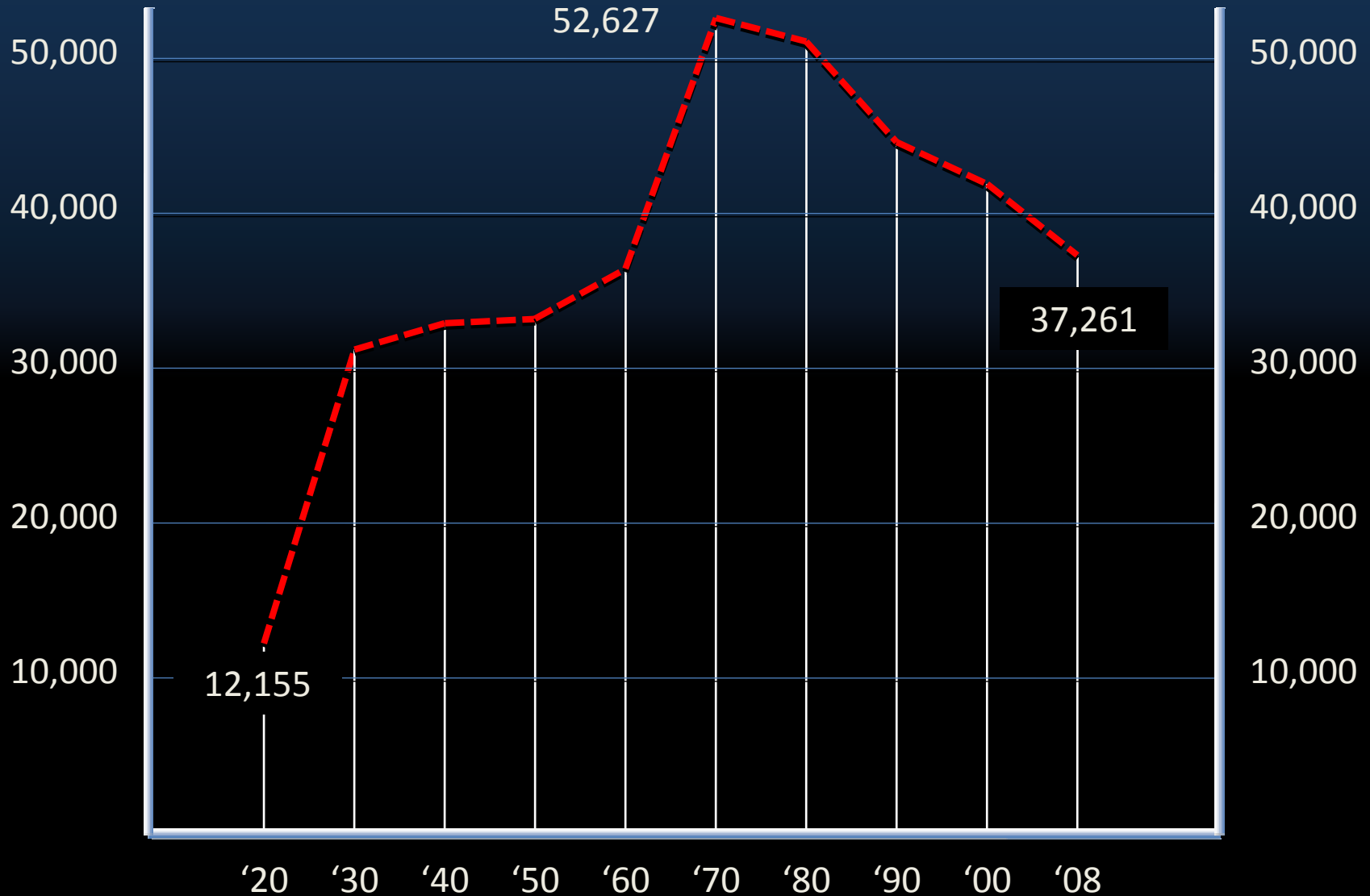
US Traffic Fatality Rate/HMVM
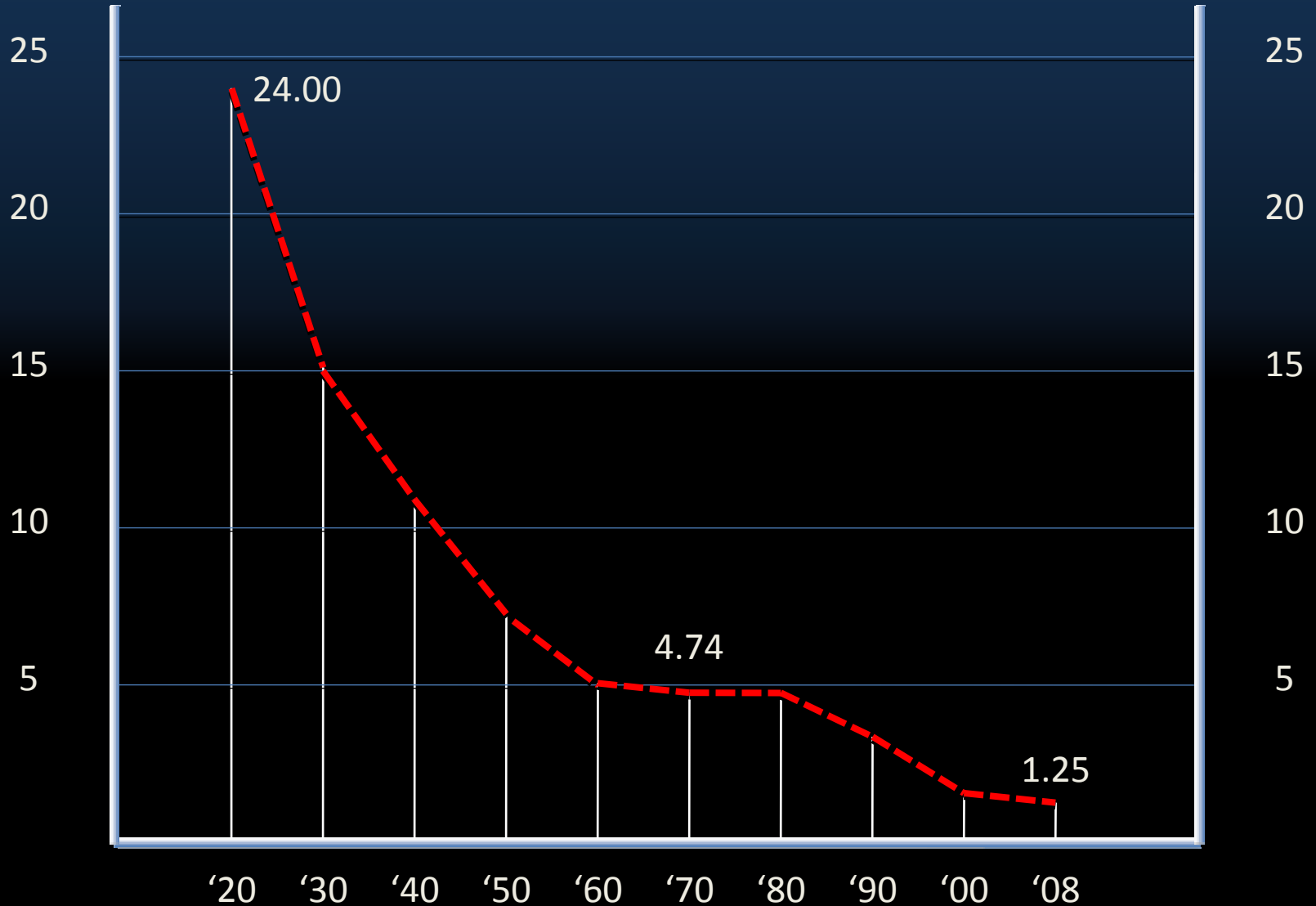
(hundred million vehicle miles)

US Traffic Fatality Rate/HMVM

(hundred million vehicle miles)

DRUNK DRIVING LAWS

New York – 1911
MADD, etc – 1970 - 1990

24.00

4.74

1.25

'20   '30   '40   '50   '60   '70   '80   '90   '00   '08

Source: NHTSA, FHWA

37

US Traffic Fatality Rate/HMVM

(hundred million vehicle miles)

24.00

SEAT BELT LAWS

Required: Federal – Jan 1, 1968
Use – New York – 1984
Use – 2009 – all but Vermont

4.74

1.25

'20   '30   '40   '50   '60   '70   '80   '90   '00   '08

Source: NHTSA, FHWA

38

US Traffic Fatality Rate/HMVM

(hundred million vehicle miles)

AIR BAGS

Ford – 1971
Chevy – 1973
Federal Req/Driver – 1989
Federal Req/Pass - 1998

24.00

4.74

1.25

'20 '30 '40 '50 '60 '70 '80 '90 '00 '08

Source: NHTSA, FHWA

39
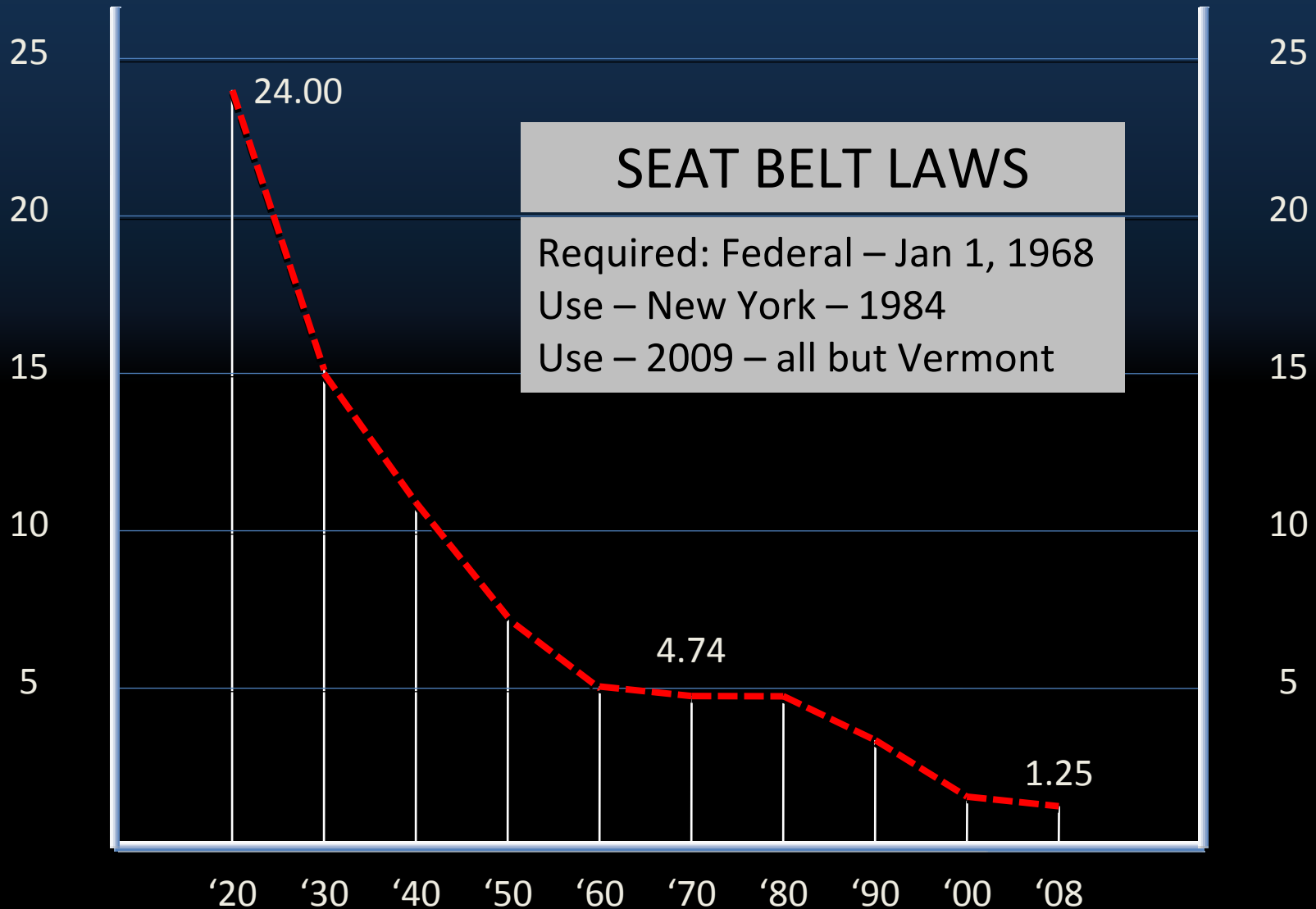
"Changes in highway infrastructure between 1984 and 1997 have not reduced traffic fatalities and injuries, and have even had the effect of increasing total fatalities and injuries.

Other factors, primarily changes in the demographic age mix of the population, increased seat belt usage, and improvements in medical technology are responsible for the downward trend in fatal accidents."

Noland, R. B. 2001, Transportation Research Board

2008 Fatalities

64% Vehicle Occupants

18% Motorcyclists

15% Pedestrians

2% Bicyclists

Other 1%
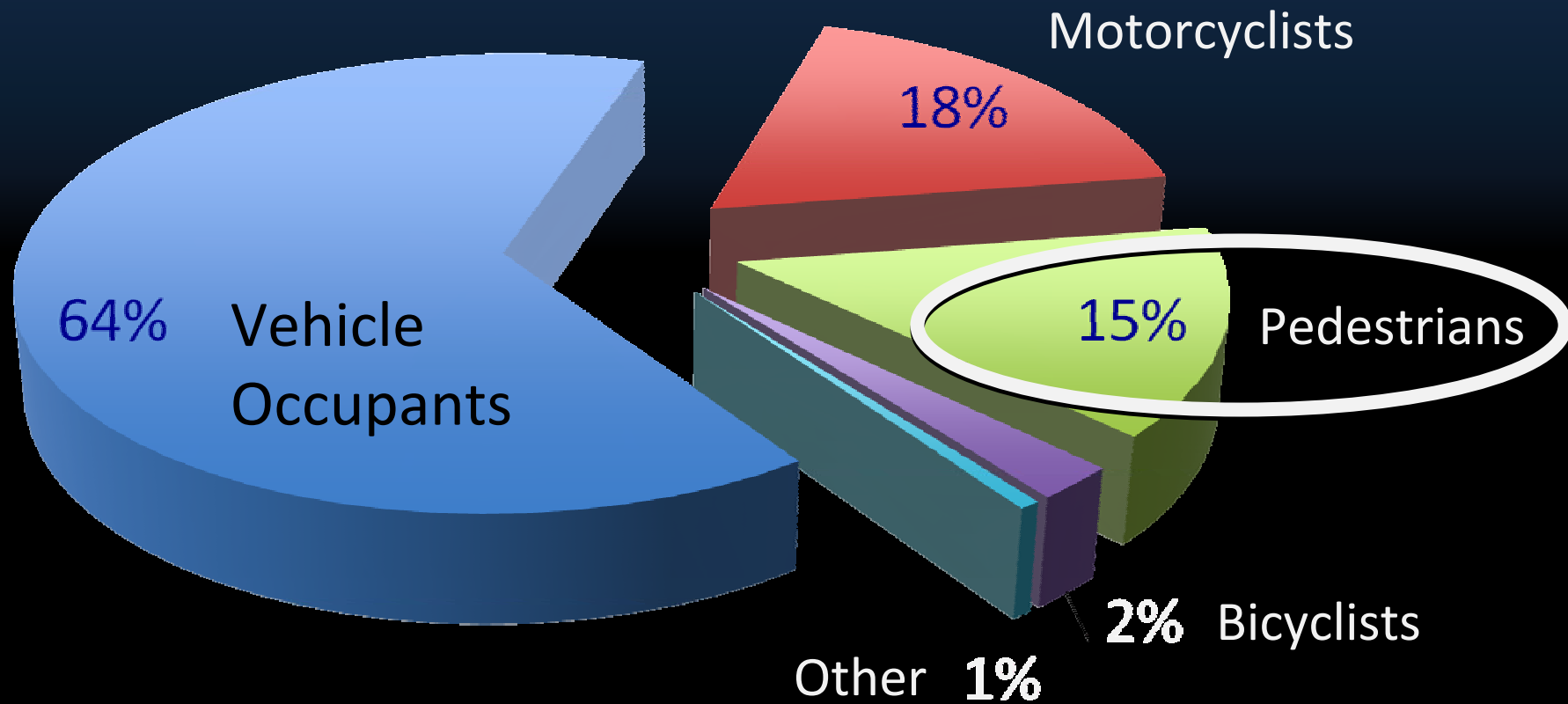
US Injury Rate:
Pedestrians Hit by Motor Vehicles

(rate/100,000 population)

Age Group	Rate
< 5	10
5 - 9	19
10 - 15	39
16 - 20	42
21 - 24	34
25 - 34	20
35 - 44	16
45 - 54	24
55 - 64	19
65 - 74	17
75 - 85	20
85 +	10

Source: NHTSA, 2008
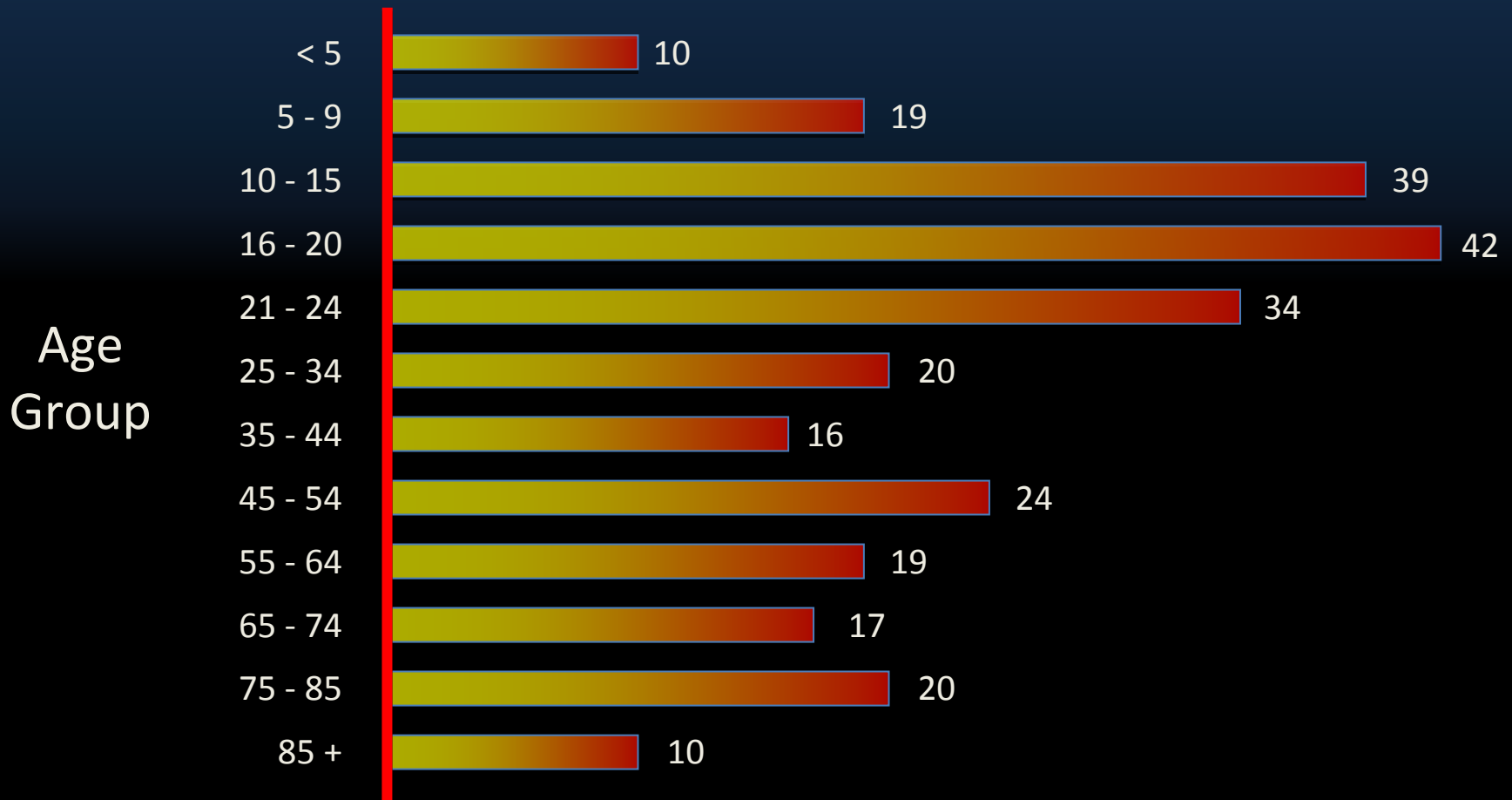
US Fatality Rate:
Pedestrians Hit by Motor Vehicles
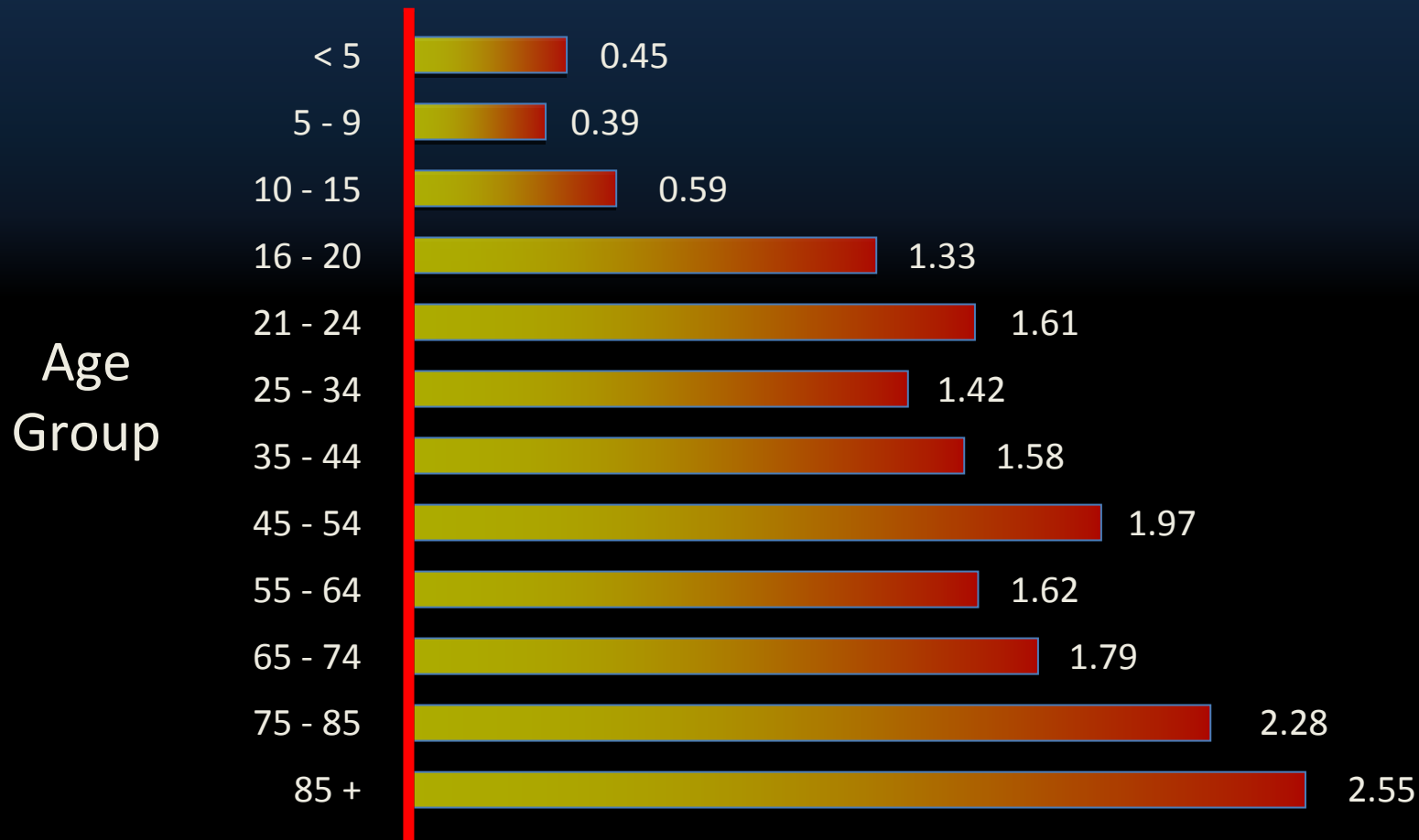
(rate/100,000 population)

Age Group

Age Group	Rate
< 5	0.45
5 - 9	0.39
10 - 15	0.59
16 - 20	1.33
21 - 24	1.61
25 - 34	1.42
35 - 44	1.58
45 - 54	1.97
55 - 64	1.62
65 - 74	1.79
75 - 85	2.28
85 +	2.55

Traffic accidents are the leading cause of unintentional injury death in children

age 1 - 4

Cause	Percentage
motor vehicle accidents	31%
drowning	27%
fires & burns	14%
falls	2%
suffocation	8%
poisoning	2%
other injuries	15%

Traffic accidents are the leading cause of unintentional injury death in children

age 5 – 9

motor vehicle accidents	53%
drowning	13%
fires & burns	13%
falls	1%
suffocation	4%
poisoning	1%
other injuries	15%

Traffic accidents are the leading cause of unintentional injury death in children

age 10 – 14

Cause	Percentage
motor vehicle accidents	58%
drowning	10%
fires & burns	6%
falls	2%
suffocation	4%
poisoning	2%
other injuries	18%

Source: CDC National Vital Statistics System, 2000 - 2005
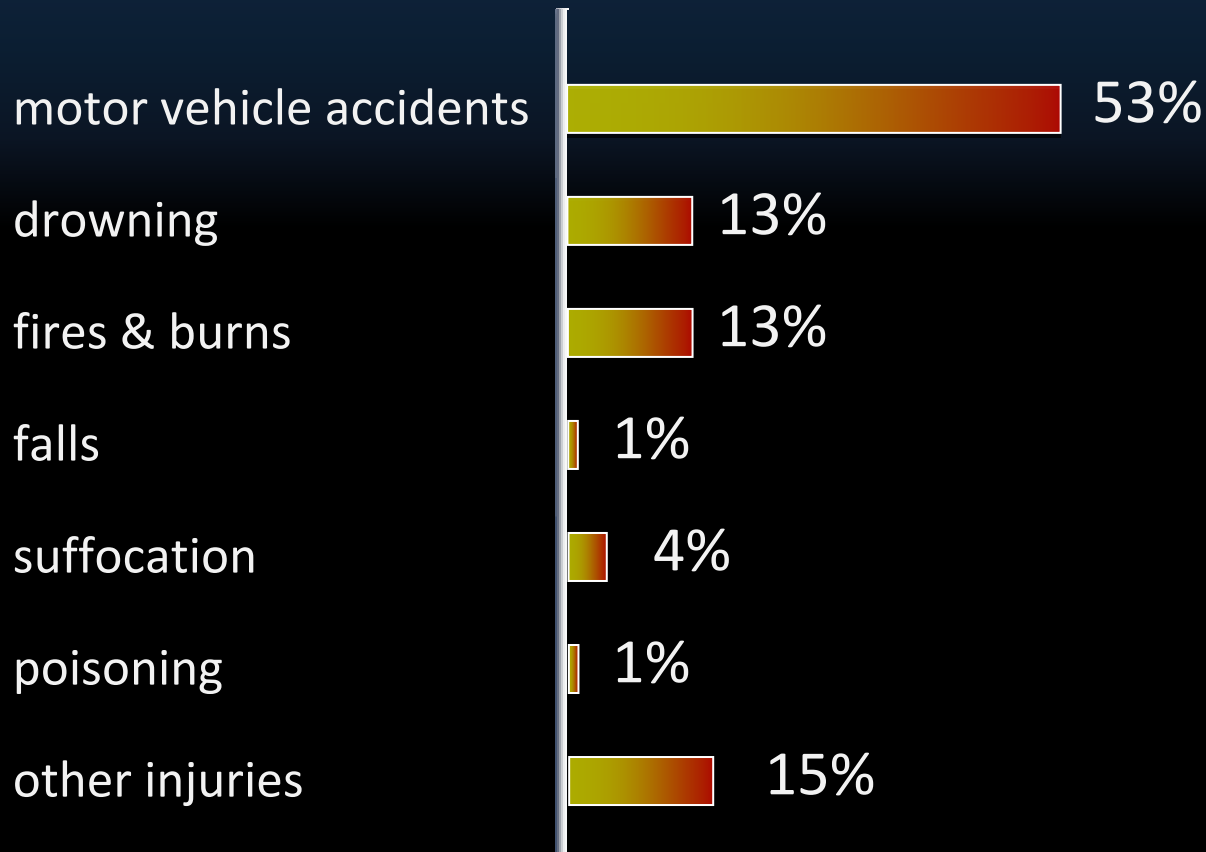
Traffic accidents are the leading cause of unintentional injury death in children
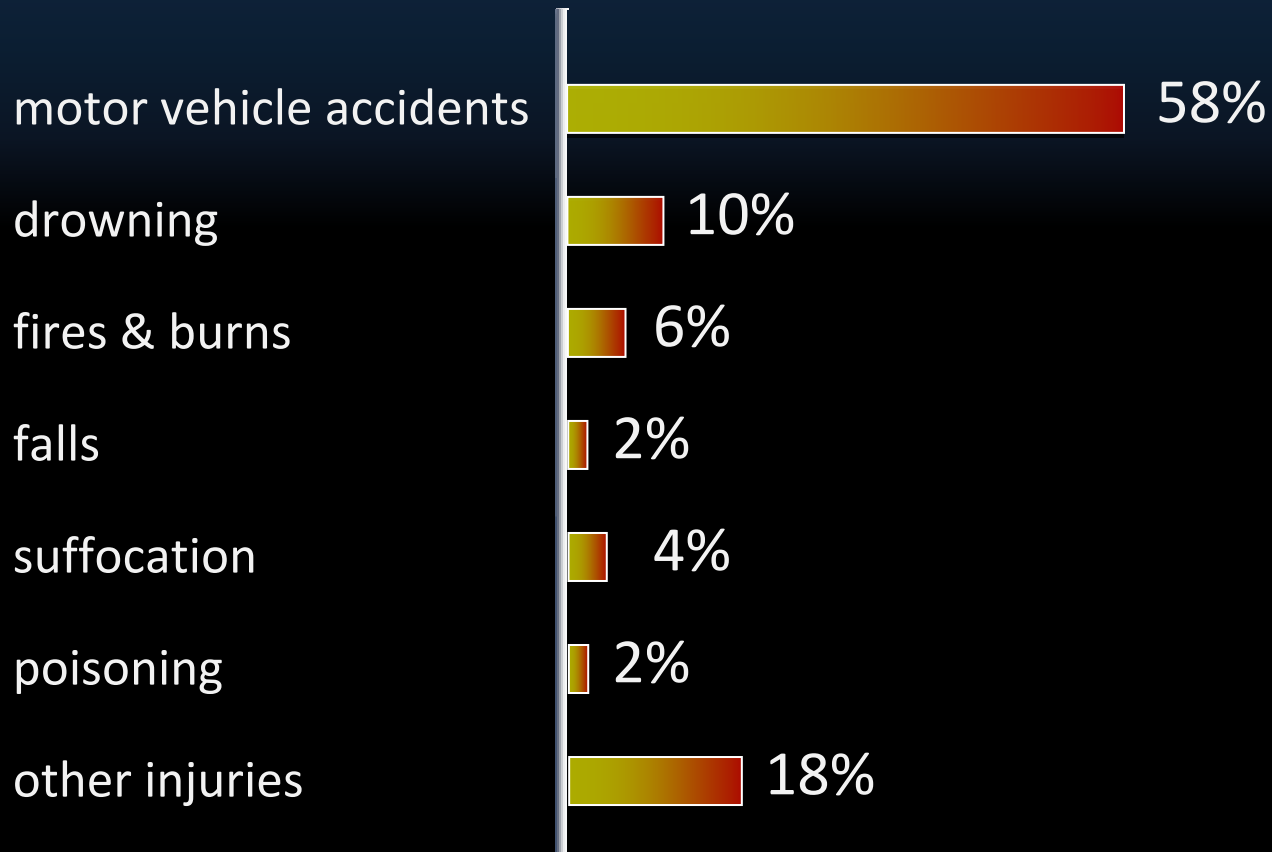
age 15 – 19

- motor vehicle accidents — 76%
- drowning — 5%
- fires & burns — 1%
- falls — 1%
- suffocation — 4%
- poisoning — 7%
- other injuries — 9%
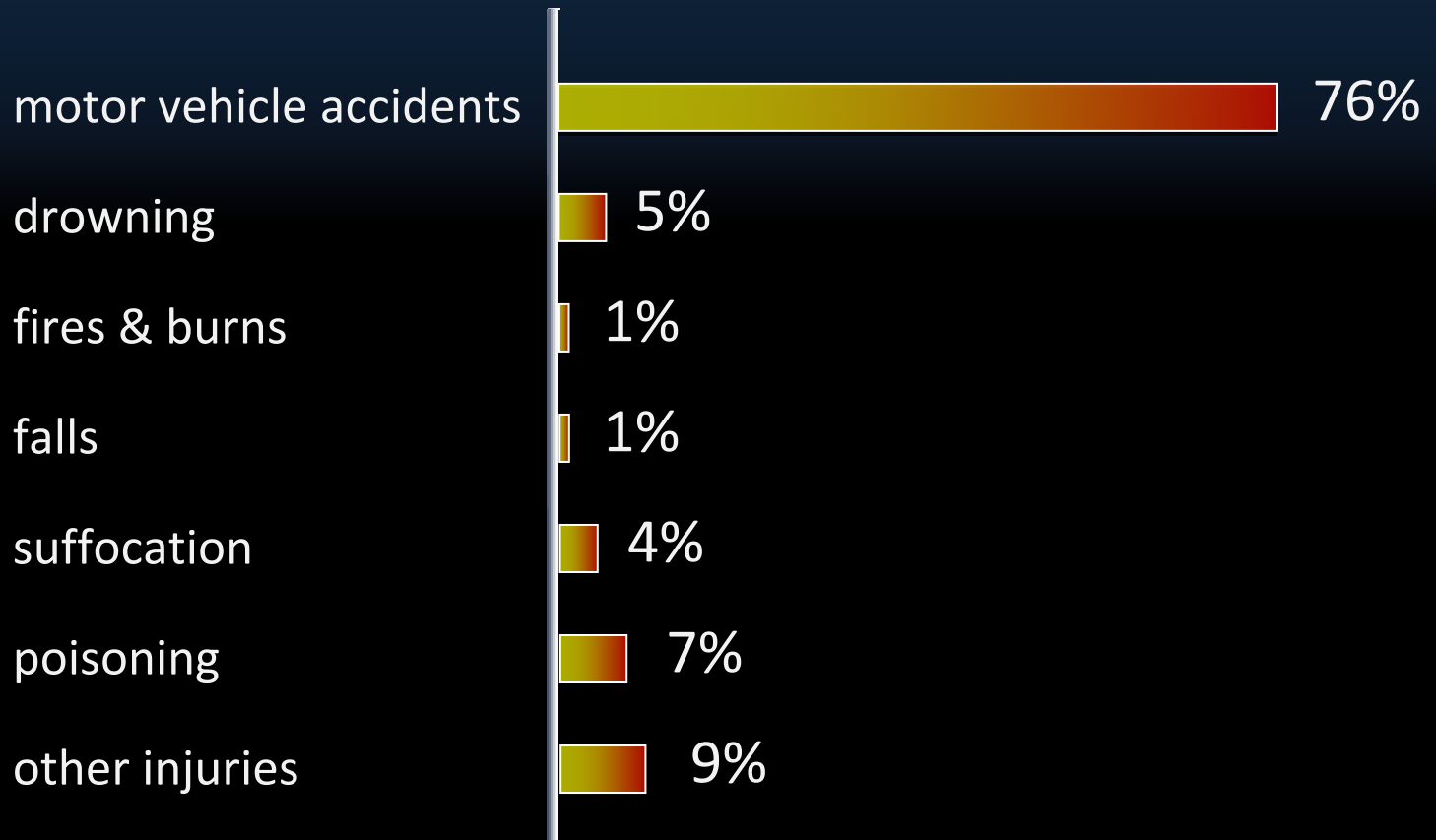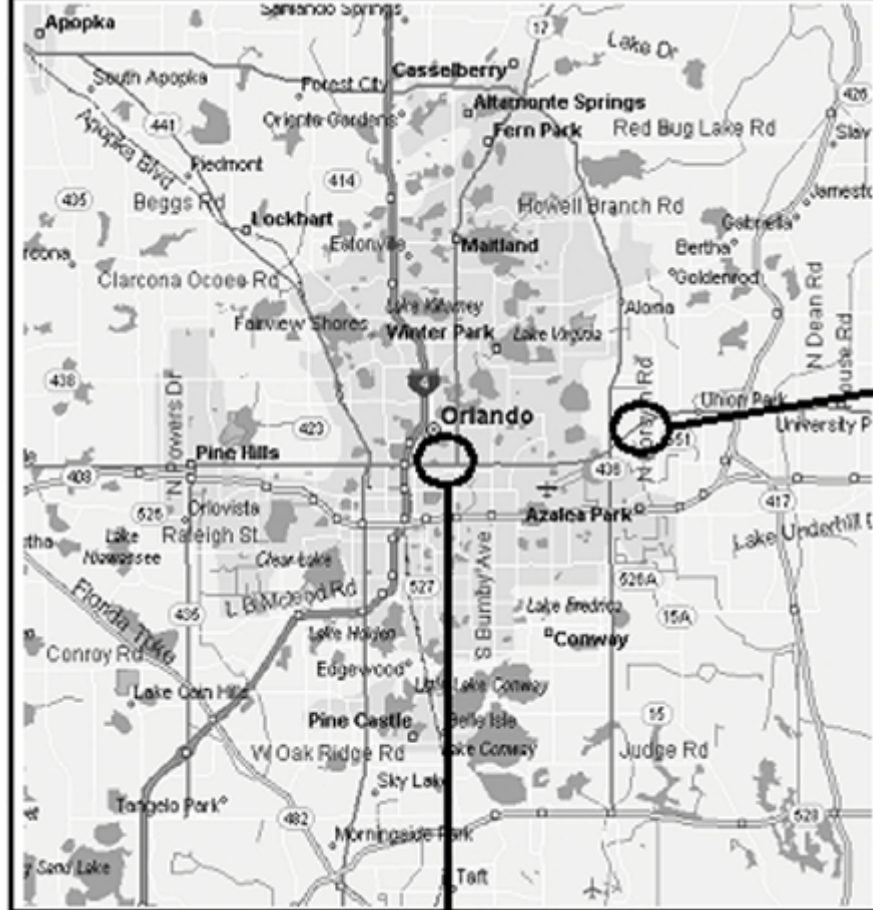
Colonial Drive: Comparison section

Colonial Drive: Livable section

48

Humans:

- recently descended from nomadic hunter/gatherers…

- walked & worked, burning calories

- experienced the world @ 2 – 3mph

- bodies were designed for collisions @ < 5 mph

we evolved as "walkers"

we are still "walkers"

this is what we do...

...but it is not who we are.

we cannot escape our DNA...

…no matter how hard we try

How Children Get to School

*(ages 5 – 14)

48%

walked or biked

44%

13%

private auto

12%

1969   2009

1969   2009
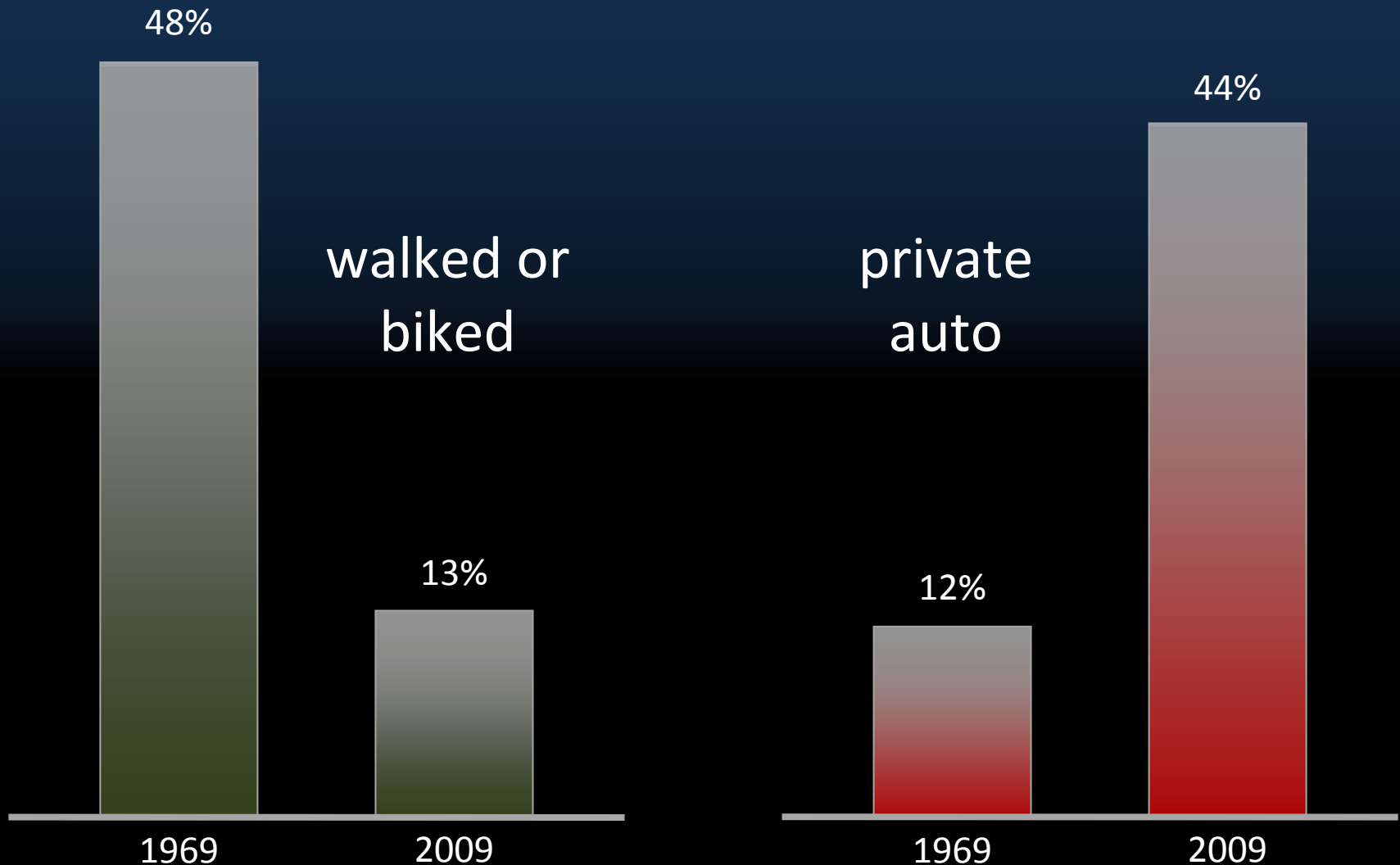
Research

- US Centers for Disease Control
- Robert Wood Johnson Foundation

Extensive Research

Residents of walkable neighborhoods were more likely to meet physical activity guidelines
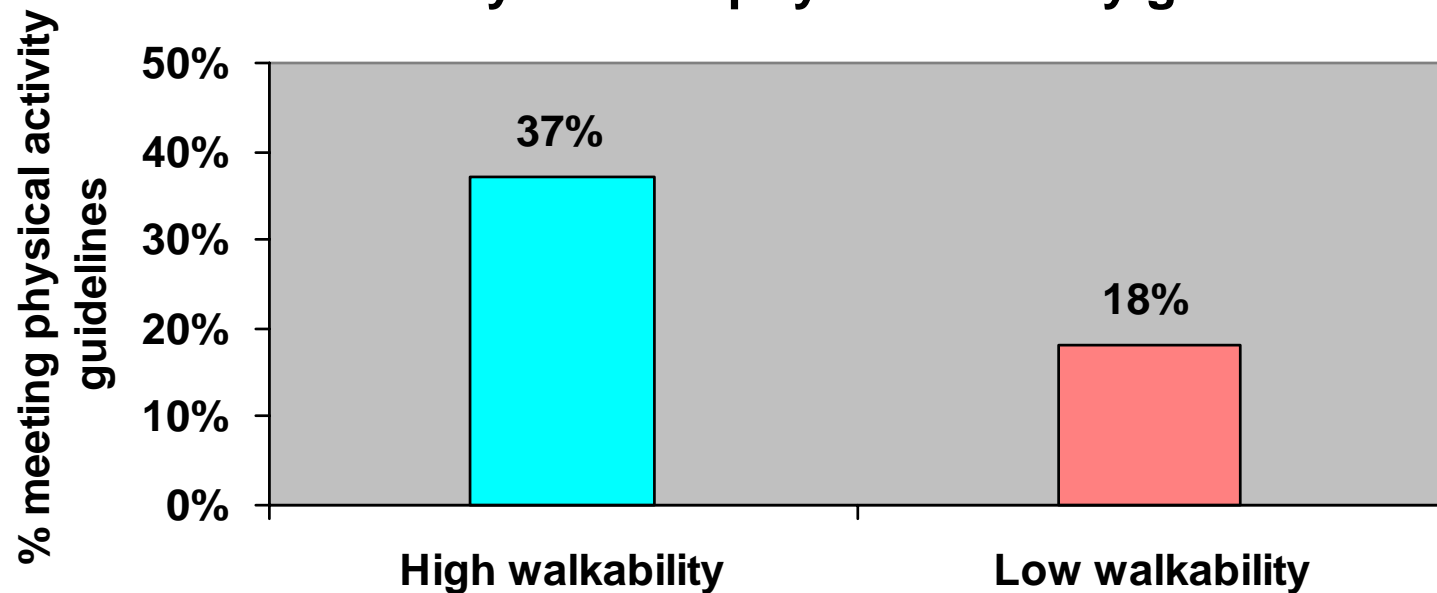
Extensive Research

Driving is a risk factor for obesity

Lopez-Zetina, Health and Place, 2006
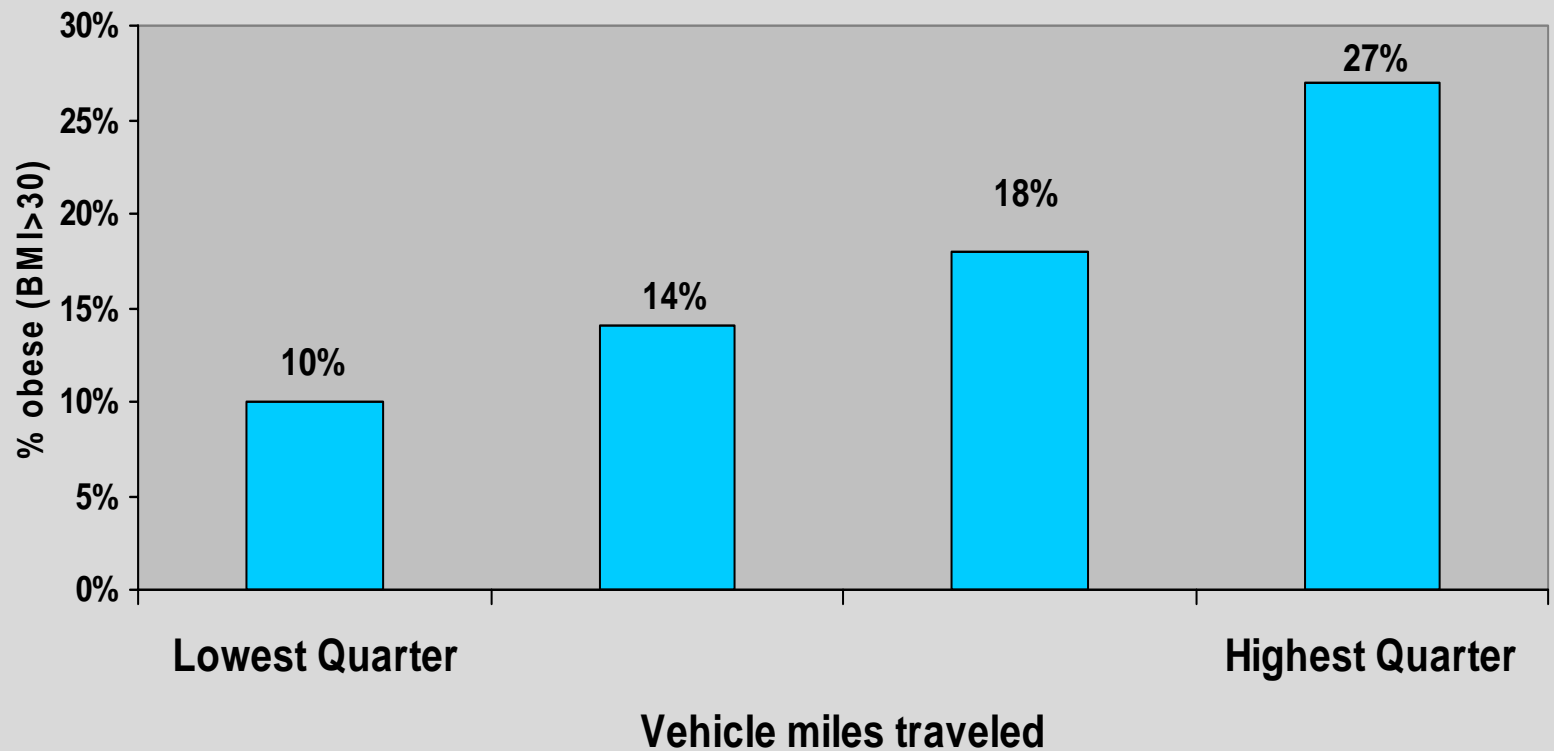
Extensive Research

States with the Highest Rates of Physical Inactivity

Rank	State	Percentage of Adult Physical Inactivity (Based on 2006-2008 Combined Data, Including Confidence Intervals)	Obesity Ranking
1	Mississippi	31.8% (+/-0.9)	1
2	Kentucky	30.4% (+/-1.0)	7
3 (tie)	Louisiana	30.3% (+/-0.9)	8
3 (tie)	Oklahoma	30.3% (+/-0.8)	6
5	Tennessee	29.8% (+/-1.2)	4
6	Alabama	29.5% (+/-1.0)	2
7	Arkansas	28.8% (+/-0.9)	10
8	Texas	28.4% (+/-0.9)	14
9	West Virginia	28.3% (+/-1.0)	3
10	New Jersey	26.7% (+/-0.8)	42

*Note: For rankings, 1 = Worst Health Outcome. 1 = Highest Rates of Physical Inactivity.

Research Conclusion #1:

People who are active as part of a
regular daily routine
are less obese and are healthier

"Active Living…"

Research Conclusion #2:

People who live where walking and bicycling are convenient, safe and comfortable are much more active.

"...by Design"

"Active Living by Design"

"Livability" =

Affordable + Healthy + Opportunities + Identity
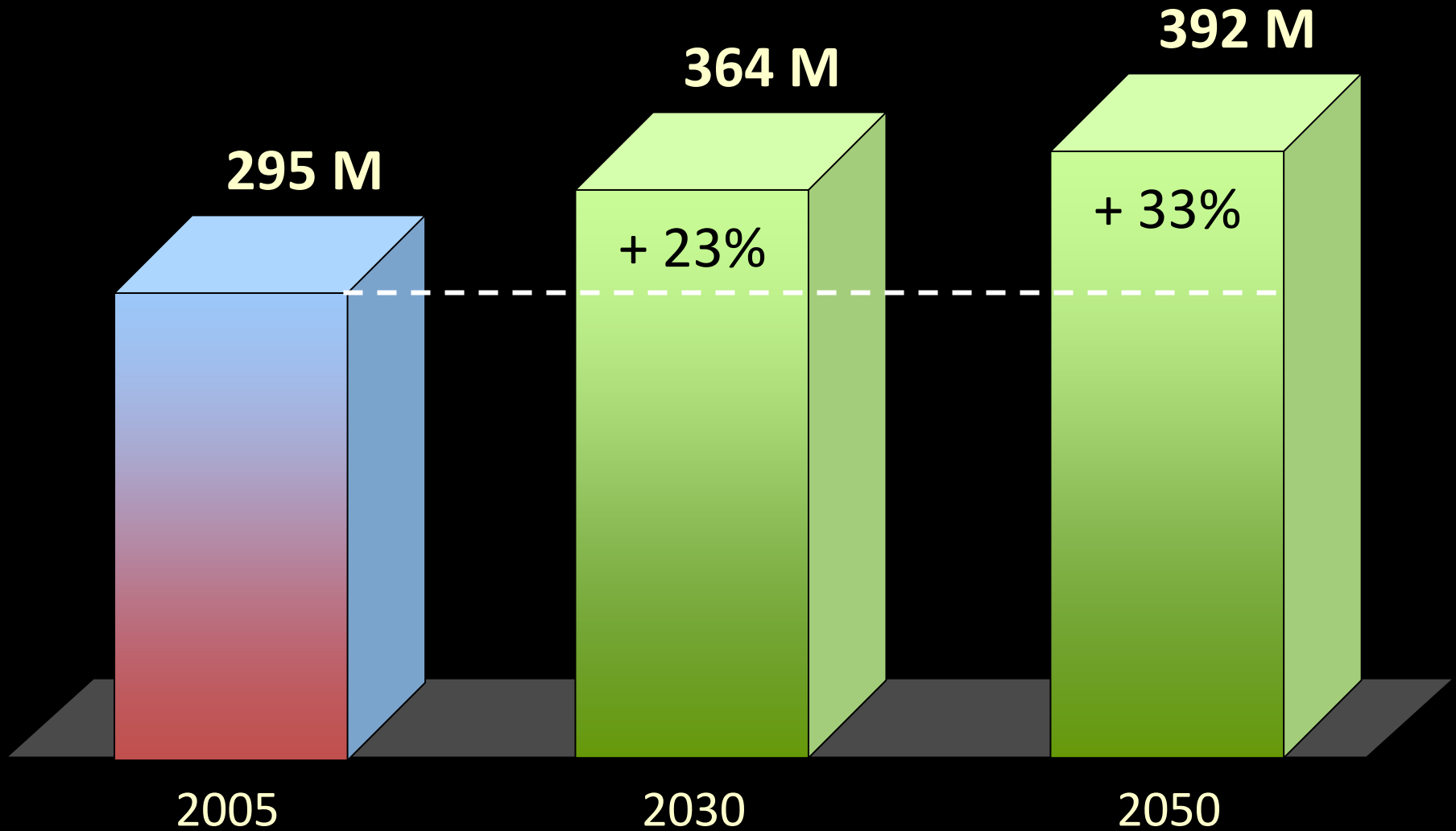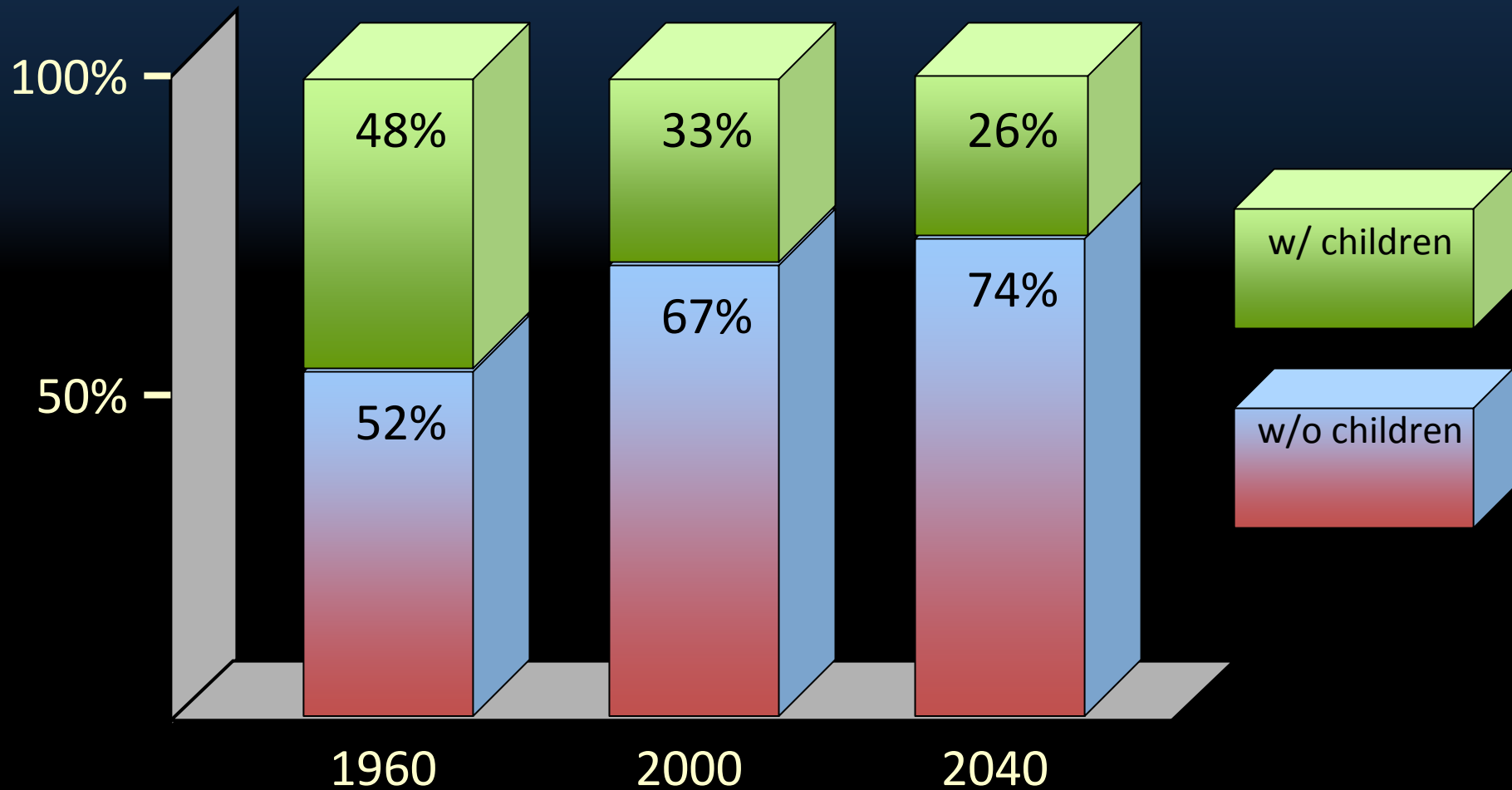
US Households

100%

48%   33%   26%

w/ children

52%   67%   74%

w/o children

50%

1960   2000   2040

Source: Dr. Arthur Nelson, University of Utah

US Households - % of Growth

Source: Dr. Arthur Nelson, University of Utah

US Dwelling Units

Millions

	2003 Supply			2025 Market		
	Attached	Small Lot	Large Lot	Attached	Small Lot	Large Lot
	27	22	57	44	40	56

US Dwelling Units

Millions

75

50

25

+17
Attached

+18
Small   Lot

-1
Large
Lot

Demand to 2025

US Households

Source: National Association of Realtors & SGA
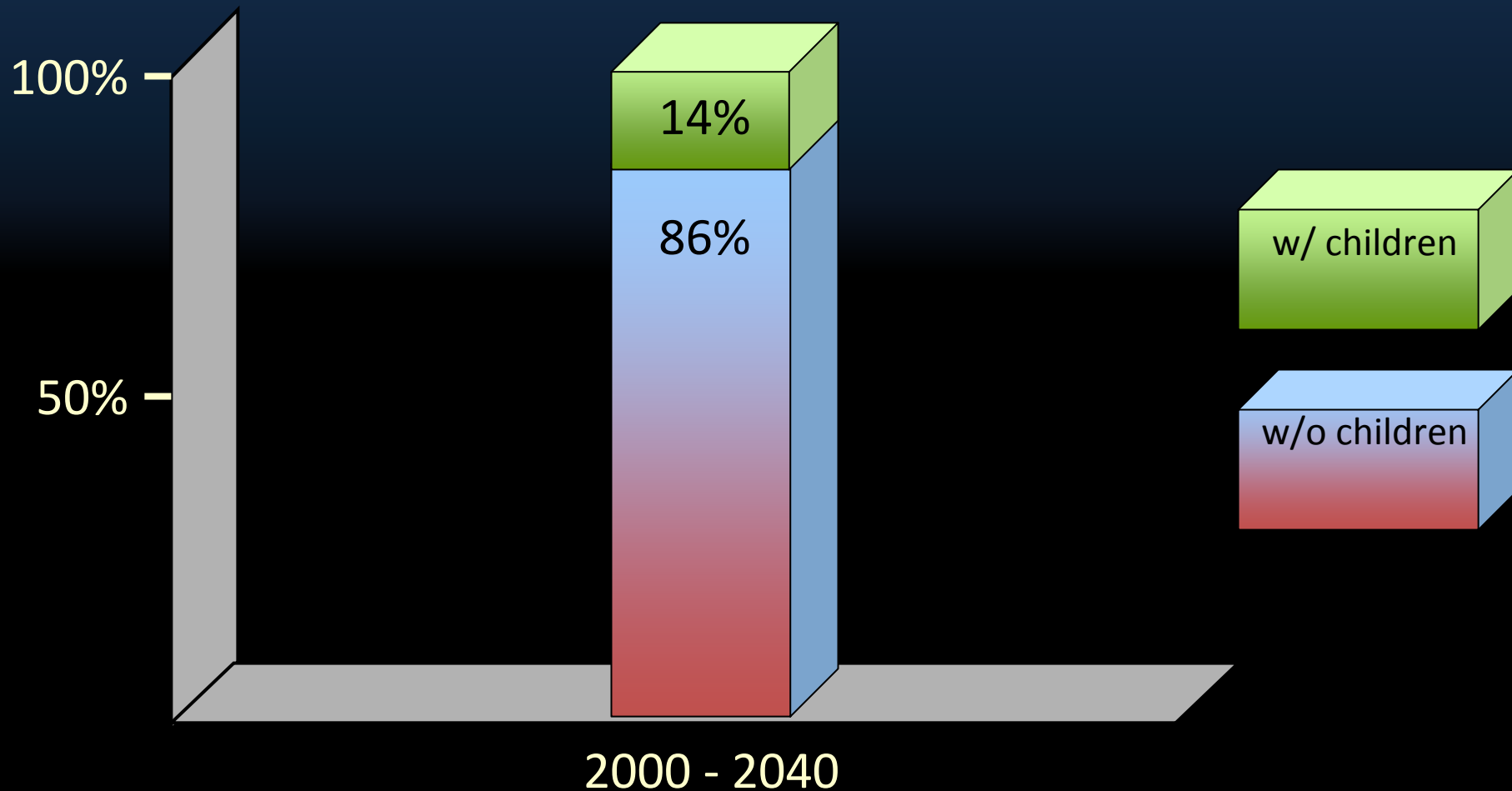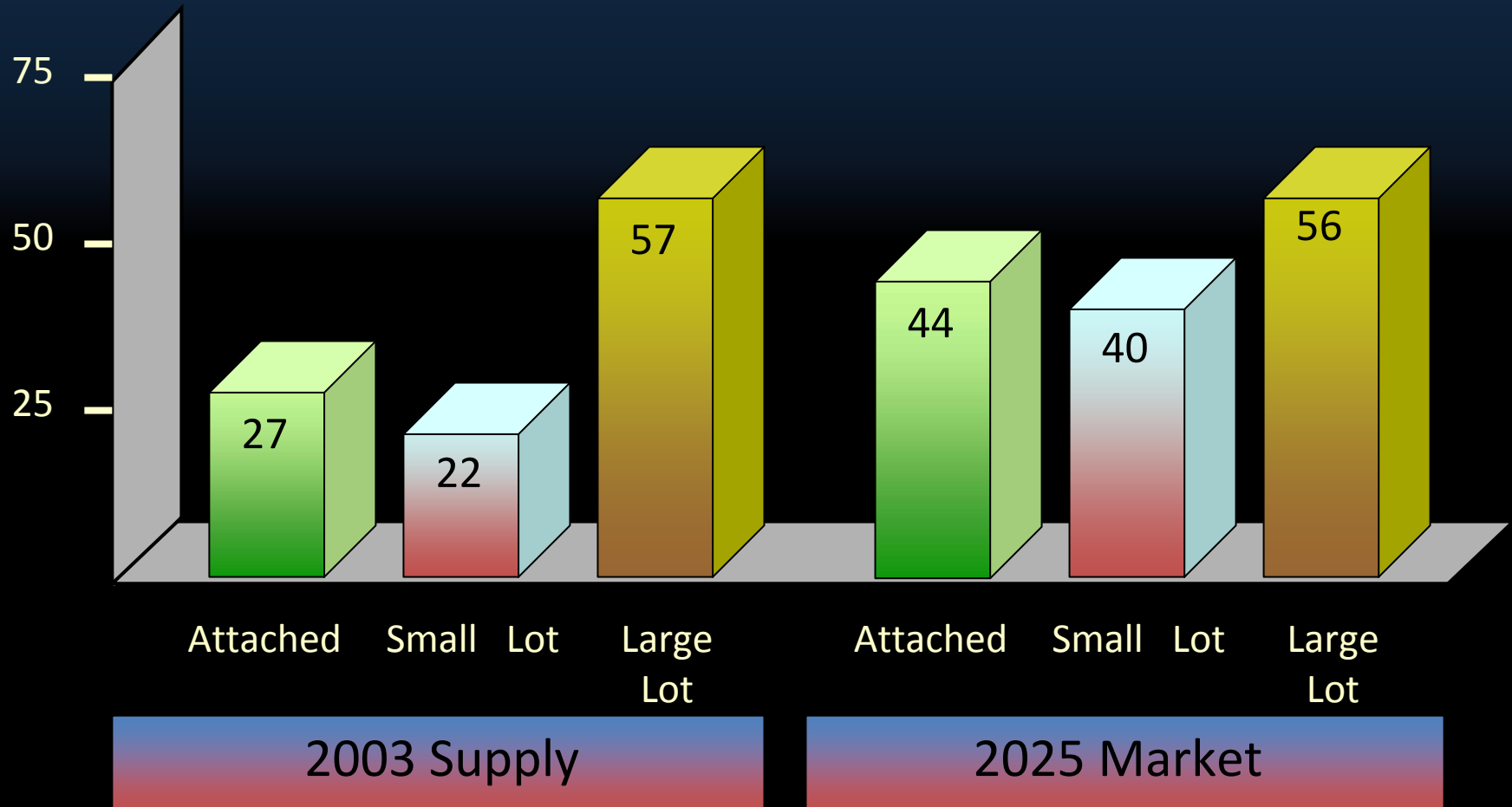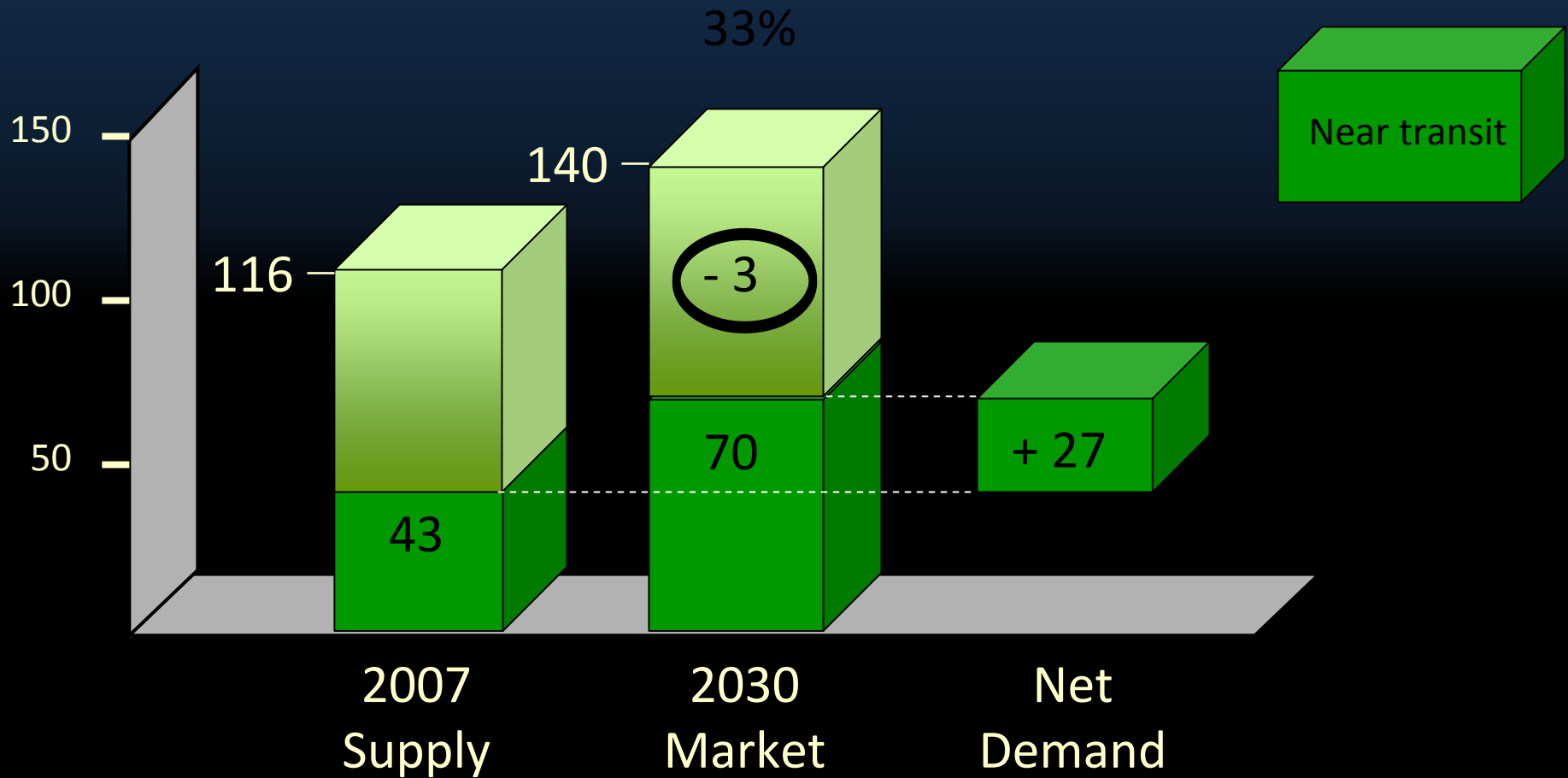
this is beginning to affect developers and housing starts

ere's
MA!

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he sits
tonight.
strow dis-
BREW, 2A

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Growth goes urban

Denver trails only Douglas County in metro-area population gains

By Burt Hubbard *The Denver Post*

Forget suburbia. Denver is the new growth hot spot in the metro area.

A U.S. Census Bureau report released today shows Denver grew faster last year than all but one of its surrounding suburban counties.

"That is amazing. It doesn't surprise me (it grew), but I didn't realize it was at such a fast rate," said Denver City Councilman Michael Hancock.

Denver wasn't the only growth superstar in Colorado, according to the report. The Greeley metro area, consisting of Weld County, was the fourth-fastest growing metro area in the nation since 2000.

And five Western Slope counties, led by energy-rich Garfield County, ranked in the top 10 in population gains in Colorado in the 12 months ending in July 2008.

The report showed Denver's population grew

2.7 percent in the 12 months ending July 2008, adding about 16,000 people since July 2007 and falling just short of 600,000.

Only Douglas County, at 3.5 percent, grew faster in the seven-county metro area. It's the first time this decade that Denver has grown faster than most of its suburbs.

Jeff Romine, chief economist for the Denver Office of Economic Development, said a resurgence
CENSUS » 12A

Denver's growth
Denver's population last year grew faster than all but one of its neighboring suburban counties, the first time that has happened this decade.

■ Percent change 2001-02
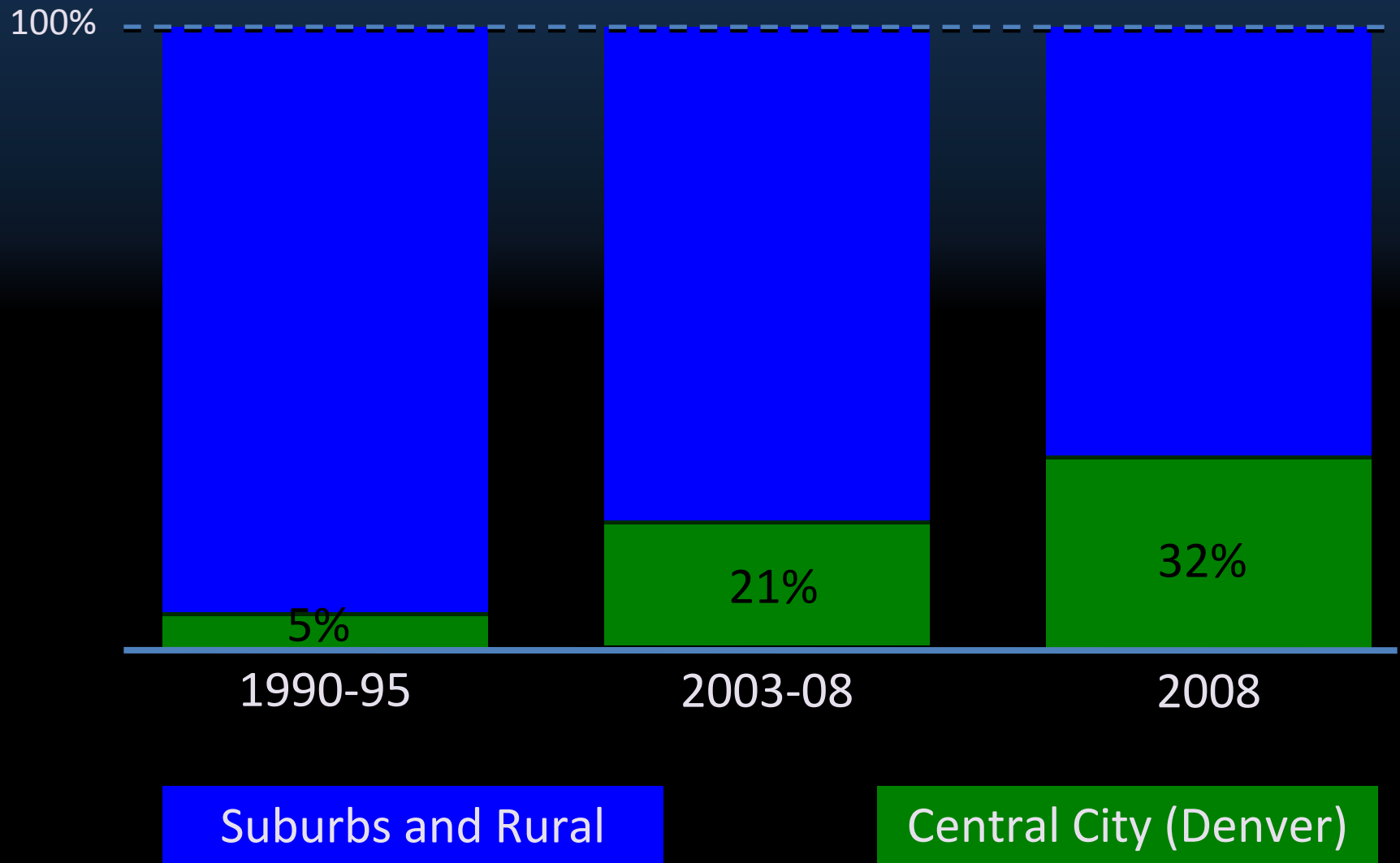■ Percent change 2007-08

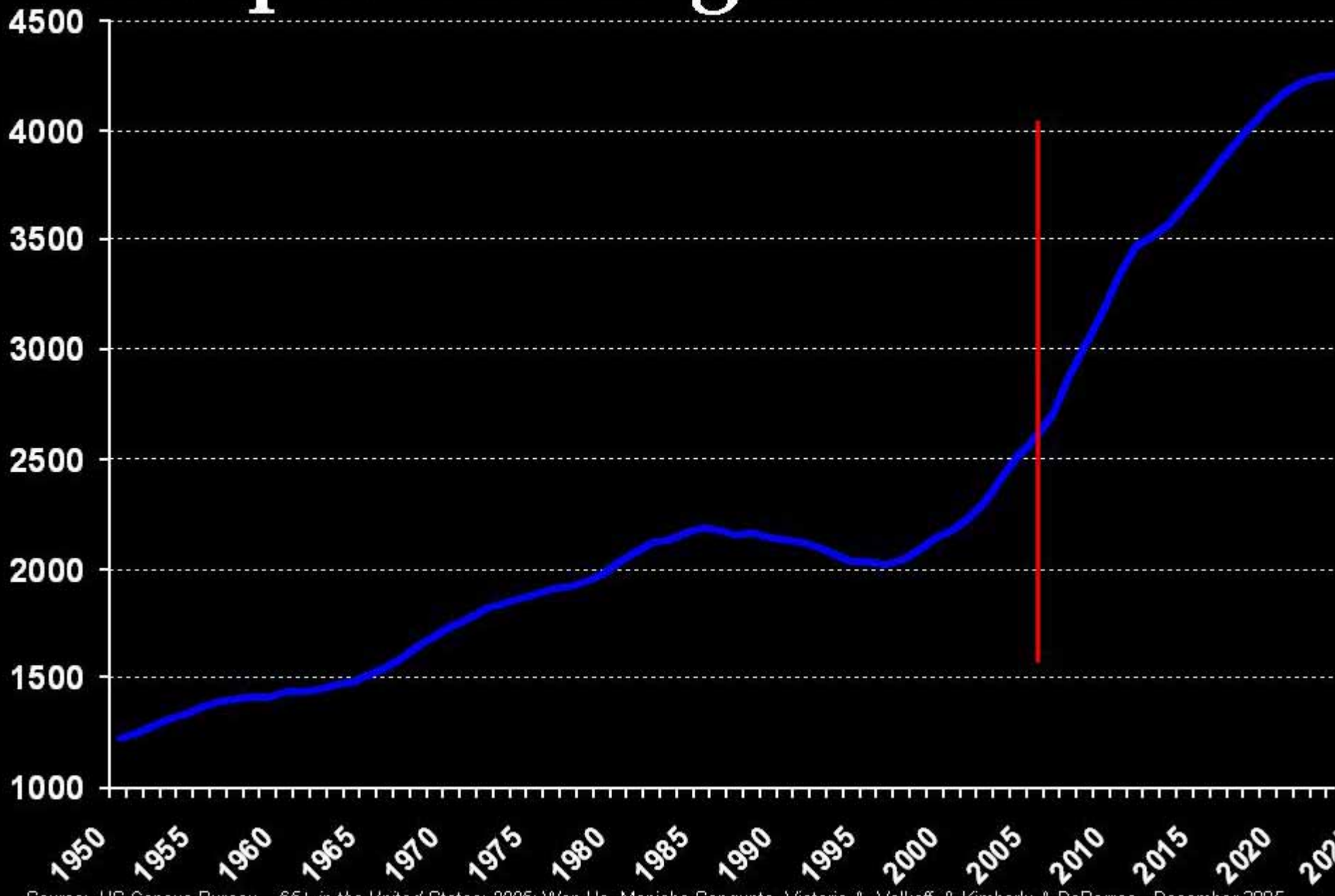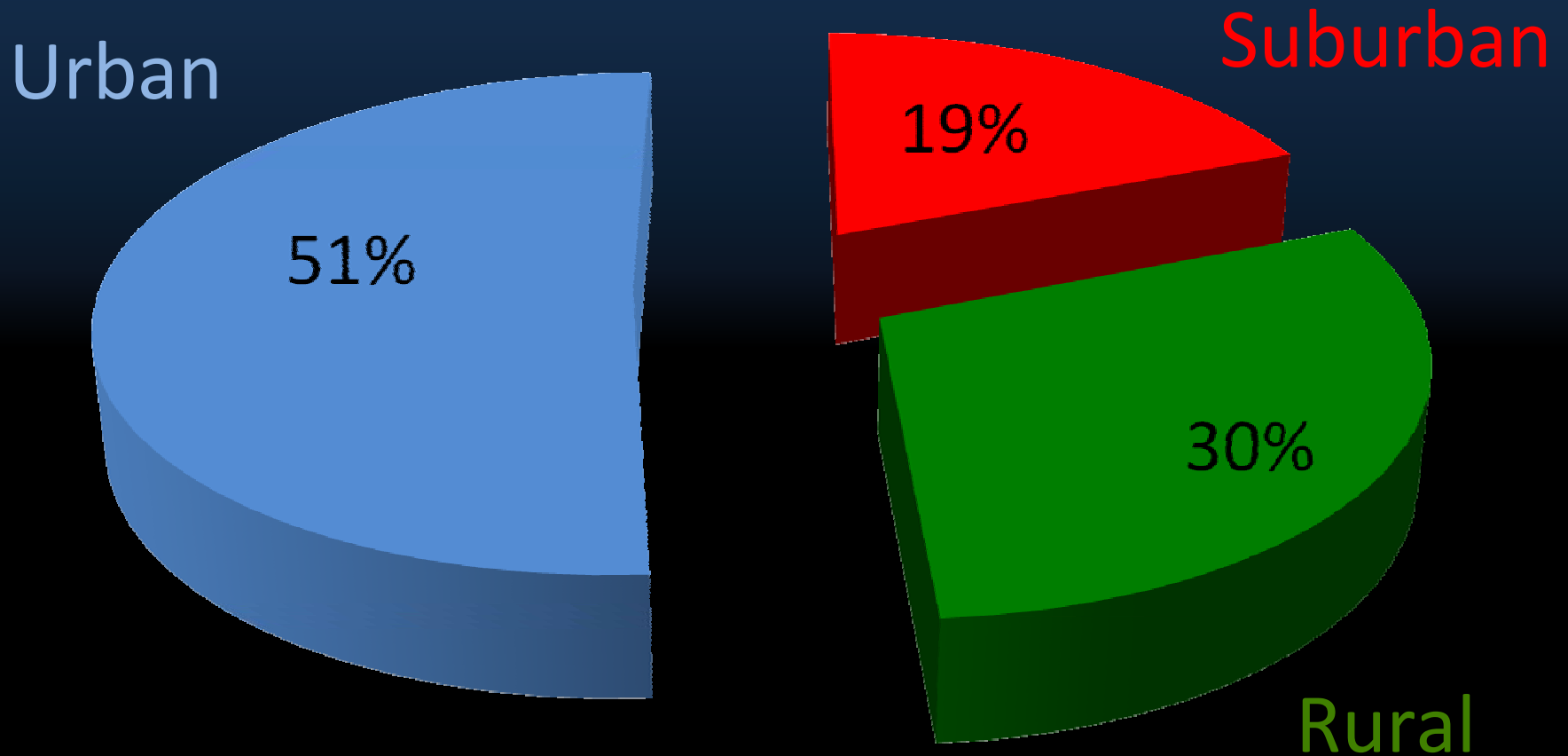| County	Percent change 2001-02	Percent change 2007-08
Broomfield	2.6%	2.3%
Douglas	6.4%	3.5%
Adams	3.2%	2.4%
Arapahoe	1.4%	2.0%
Denver	-0.5%	2.7%
Jefferson	-0.1%	1.0%
Boulder	0.7%	1.5%
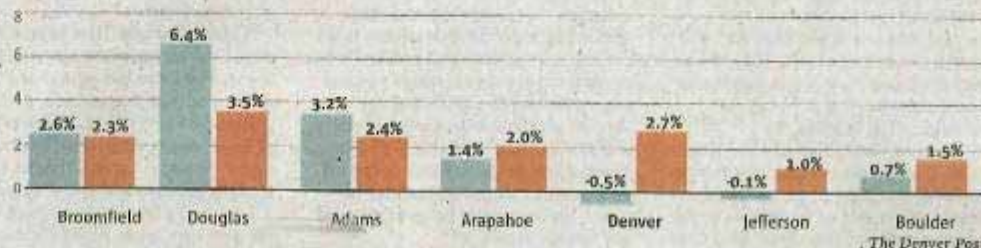
Share of New Housing Starts by Regional Location – Denver Region

100%

5%
1990-95

21%
2003-08

32%
2008

Suburbs and Rural   Central City (Denver)

73

People Turning 65 *Each* Year

US Retirement Preferences

Urban
51%

Suburban
19%

Rural
30%

Walking the Walk

How Walkability Raises Home Values in U.S. Cities

Joe Cortright, Impresa, Inc.,
for CEOs for Cities
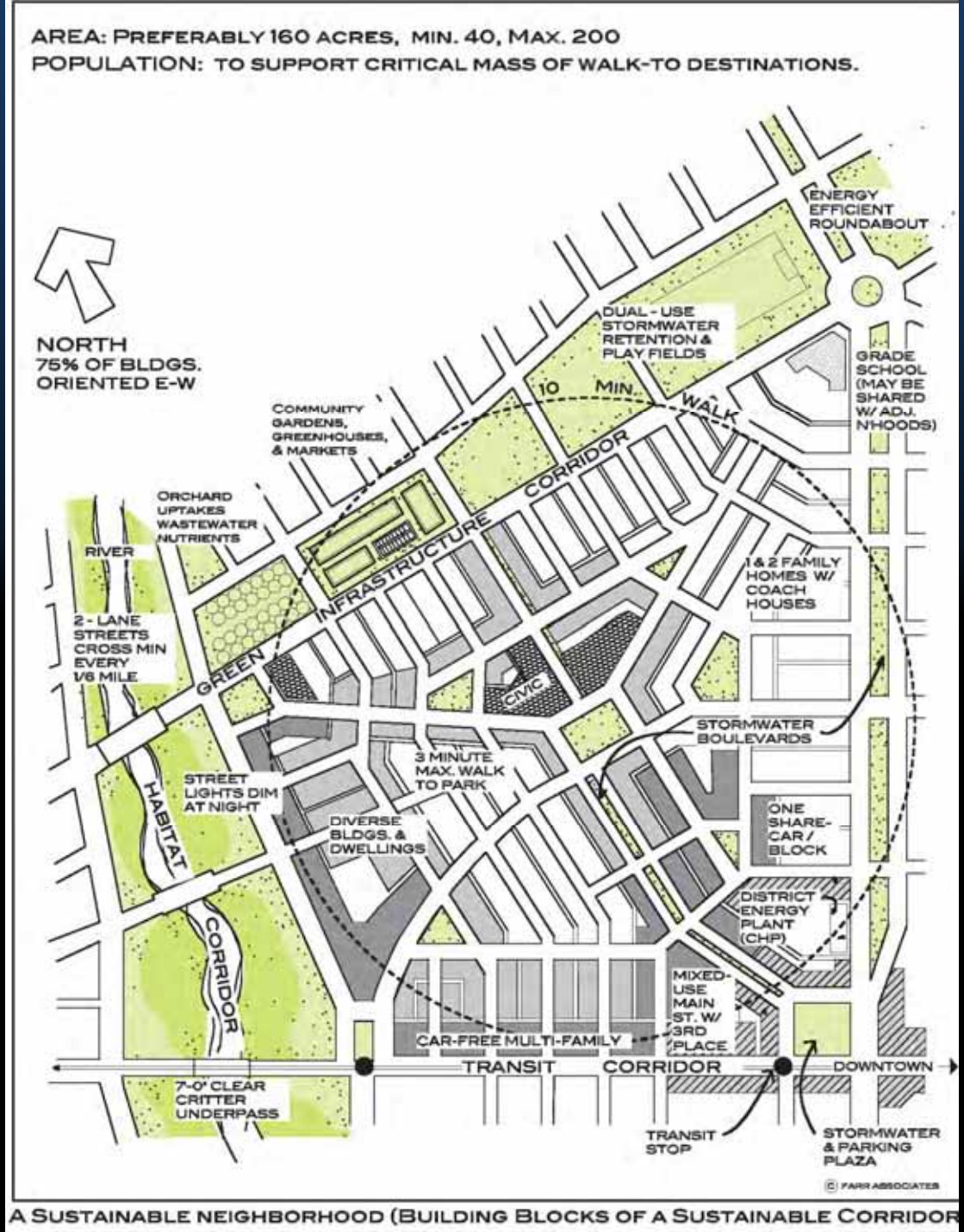August 2009

CEOs FOR CITIES
INSPIRE · CONNECT · SUCCEED

Walkability and House Value*

City	Walkability Premium
Austin, TX	+ $24,871
Dallas, TX	+ $4,278
Fresno, CA	+ $7,427
Phoenix, AZ	+ $18,689
Sacramento, CA	+ $34,345
San Francisco, CA	+ $32,837
Seattle, WA	+ $19,789
Tucson, AZ	+ $10,841

* difference in house value: citywide median WalkScore compared to 75 percentile and above

the complete neighborhood

- ¼ mile radius
- 160 – 200 acres
- schools
- local retail
- services
- parks
- diverse housing

AREA: PREFERABLY 160 ACRES, MIN. 40, MAX. 200
POPULATION: TO SUPPORT CRITICAL MASS OF WALK-TO DESTINATIONS.

NORTH
75% OF BLDGS.
ORIENTED E-W

ENERGY EFFICIENT ROUNDABOUT

DUAL - USE STORMWATER RETENTION & PLAY FIELDS

GRADE SCHOOL (MAY BE SHARED W/ ADJ. NHOODS)

10 MIN. WALK

COMMUNITY GARDENS, GREENHOUSES, & MARKETS

ORCHARD UPTAKES WASTEWATER NUTRIENTS

RIVER

2 - LANE STREETS CROSS MIN EVERY 1/6 MILE

1 & 2 FAMILY HOMES W/ COACH HOUSES

CIVIC

STORMWATER BOULEVARDS

STREET LIGHTS DIM AT NIGHT

3 MINUTE MAX. WALK TO PARK

DIVERSE BLDGS. & DWELLINGS

ONE SHARE-CAR / BLOCK

HABITAT

DISTRICT ENERGY PLANT (CHP)

CORRIDOR

MIXED-USE MAIN ST. W/ 3RD PLACE

CAR-FREE MULTI-FAMILY

TRANSIT CORRIDOR

DOWNTOWN

7-0' CLEAR CRITTER UNDERPASS

TRANSIT STOP

STORMWATER & PARKING PLAZA

© FARR ASSOCIATES

A SUSTAINABLE NEIGHBORHOOD (BUILDING BLOCKS OF A SUSTAINABLE CORRIDOR)

the complete neighborhood

- walkable
- mixed-use
- transit-served
- urbanism

A SUSTAINABLE NEIGHBORHOOD (BUILDING BLOCKS OF A SUSTAINABLE CORRIDOR
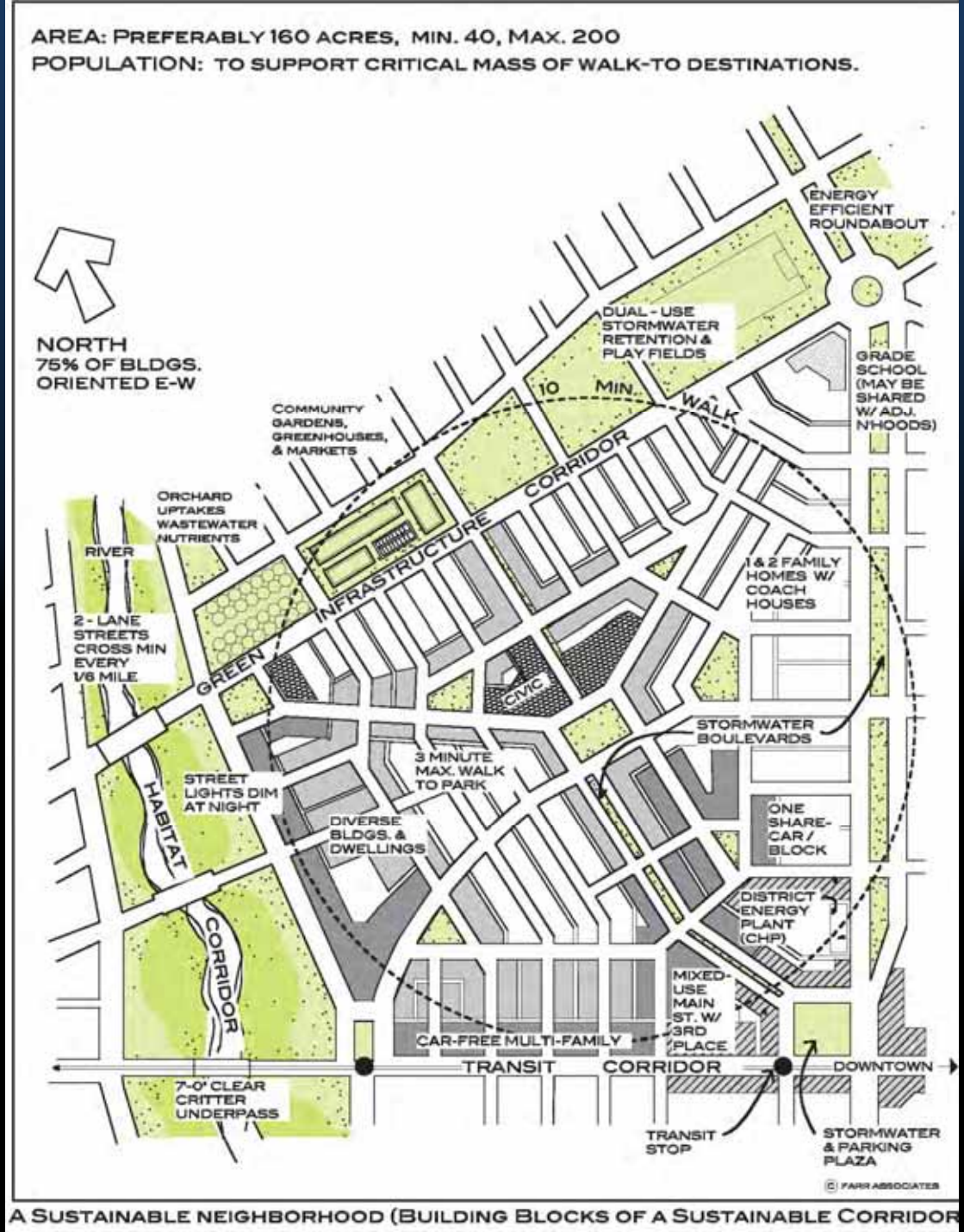
Victor's Coffee Co

the complete neighborhood

- stable
- increasing value
- less VMT/capita
- in demand
  - ✓ boomers
  - ✓ millennials

AREA: PREFERABLY 160 ACRES, MIN. 40, MAX. 200
POPULATION: TO SUPPORT CRITICAL MASS OF WALK-TO DESTINATIONS.

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A SUSTAINABLE NEIGHBORHOOD (BUILDING BLOCKS OF A SUSTAINABLE CORRIDOR

Walkable, mixed-use urbanism will be the primary market for new housing

Walkable, mixed-use urbanism – housing stock available in 2010

5%

Walkable, mixed-use urbanism – housing demand to 2040

33%

Chris Leinberger, Brookings Institution

76 million elders   78 million millennials

two largest generations, same housing market:
mixed-use, transit-served, walkable neighborhoods

"Livability" =

Affordable + Healthy + Opportunities + Identity

"Mobility"

"Mobility" =

Travel + Circulation + Access

Elements

TRAVEL	Moving over distances
CIRCULATION	Moving within areas
ACCESS	Getting in the door

Facilities

TRAVEL Freeways, arterials, rail transit, express bus lanes

CIRCULATION Collectors, connectors, transit routes, bike trails and lanes

ACCESS Local streets, parking, sidewalks and crosswalks

Built for...

Seattle

Redmond

...travel

Built for...

Denver

Boulder

...travel

Built for…

…circulation

Flagstaff

Redmond

Built for...

Portland

Boulder

...circulation

Built for…

Boulder
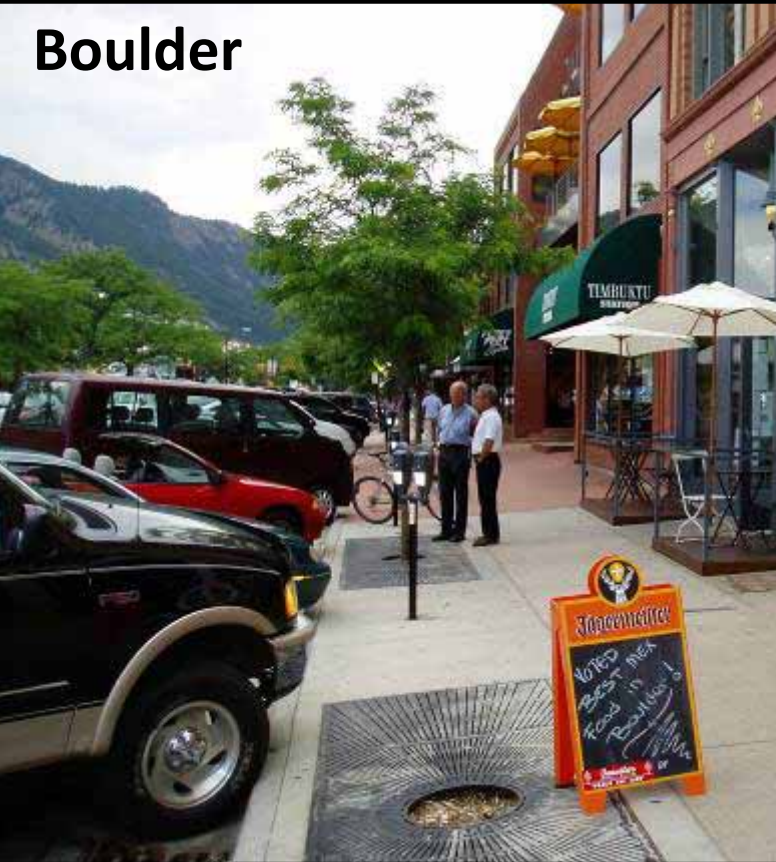
Winter Park, Fl

…access
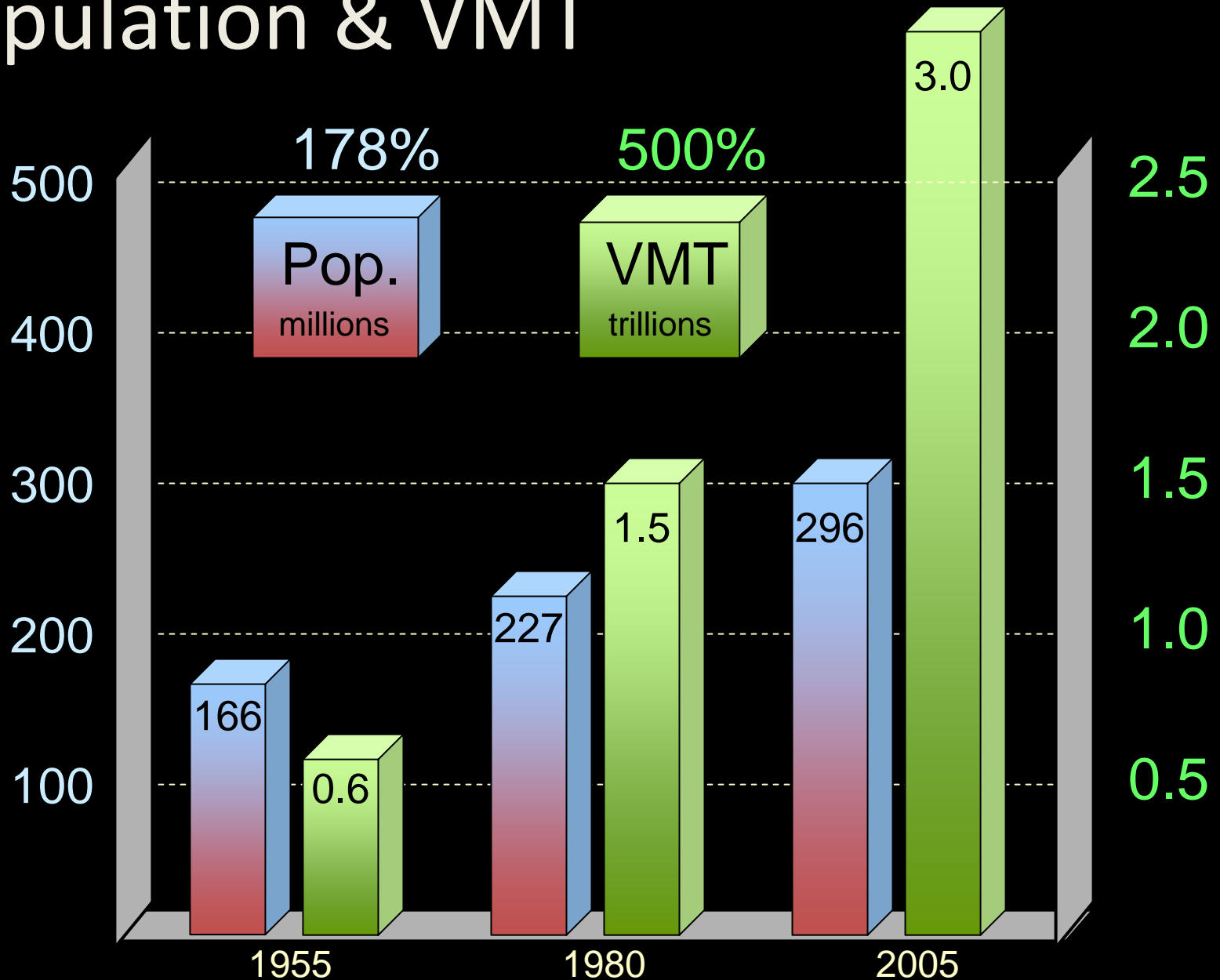
United States
Annual Rate of Change in VMT

Daily Per Capita Travel

4%

16%

43%

Other

Commuting

Family/Personal

Social/Recreat ional

Church/Schoo l

27%

10%
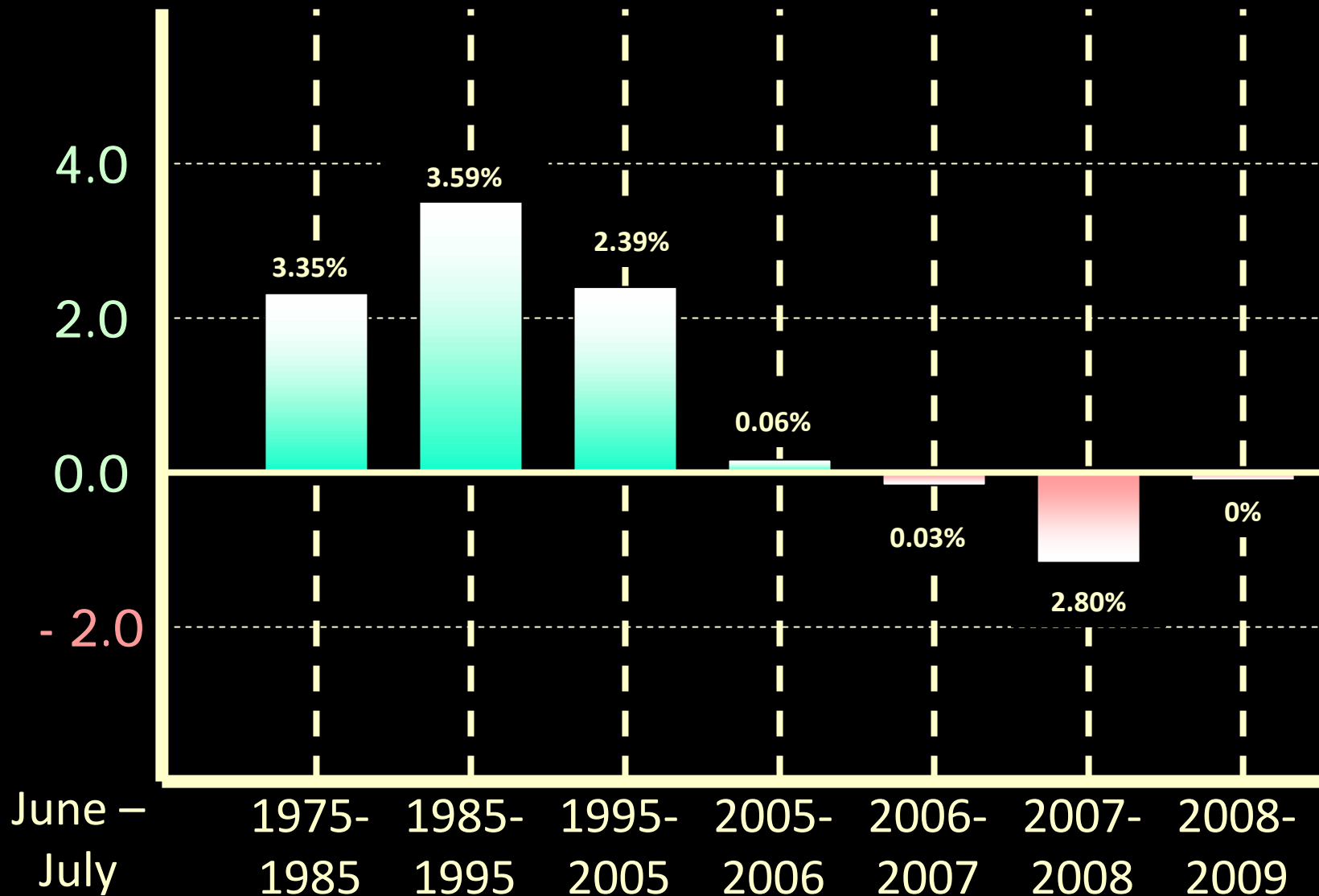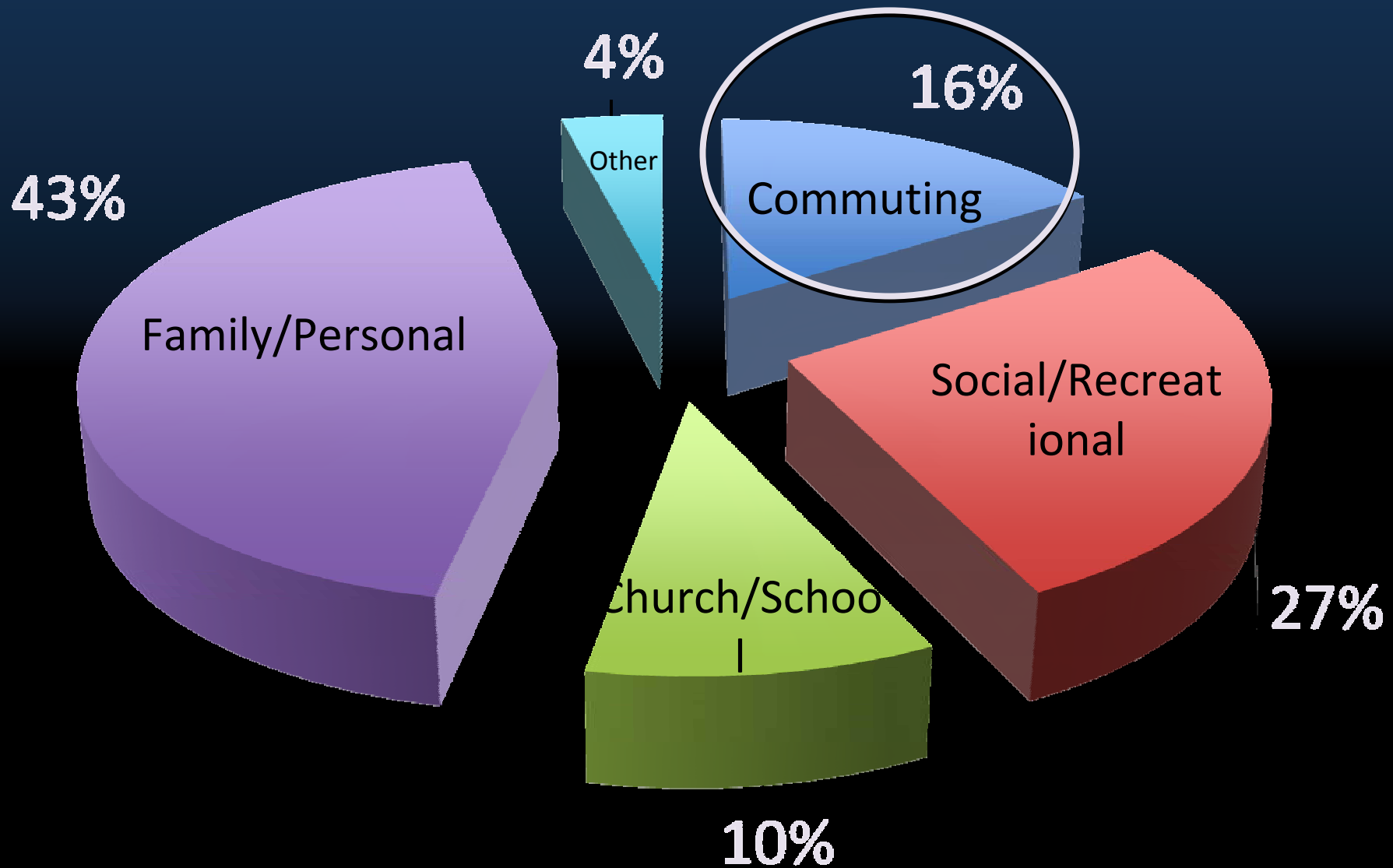
Daily Miles of Travel Per Capita

Average Trip Lengths

6.01

50%

25%

Walk (0.73)

Bicycle (2.13)

Streetcar (5.41)

Local Bus (6.44)

Auto (10.29)

(2009 NHTS)

99

Trip Length – All Trips

1 mile   2 miles   3 miles

28%

40%

50%
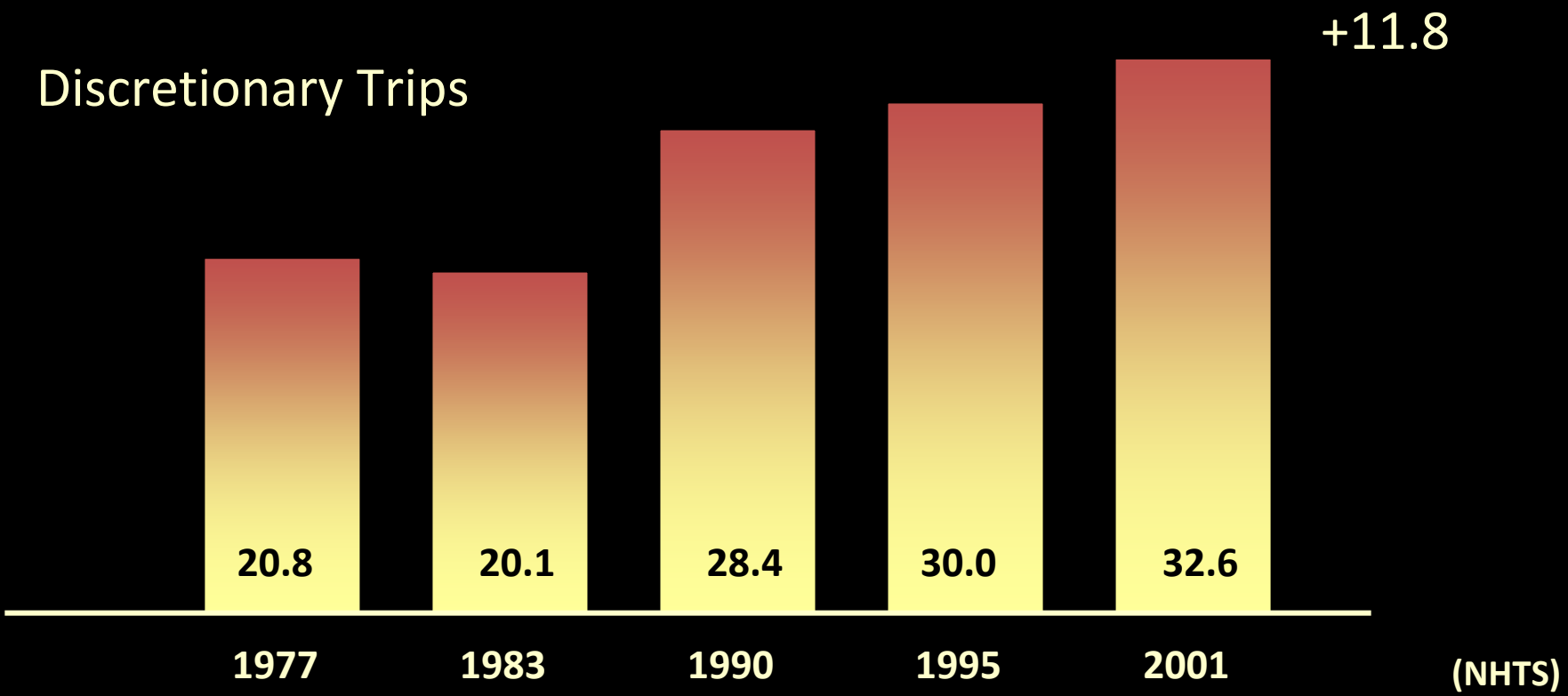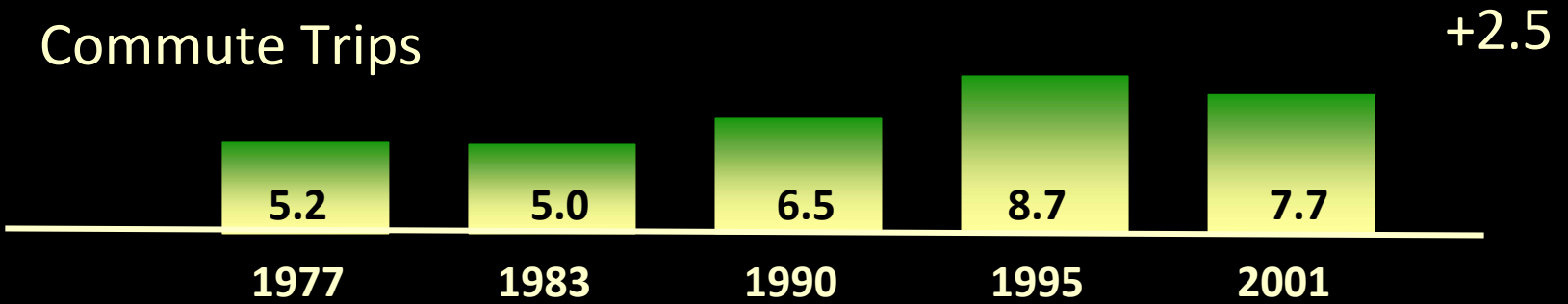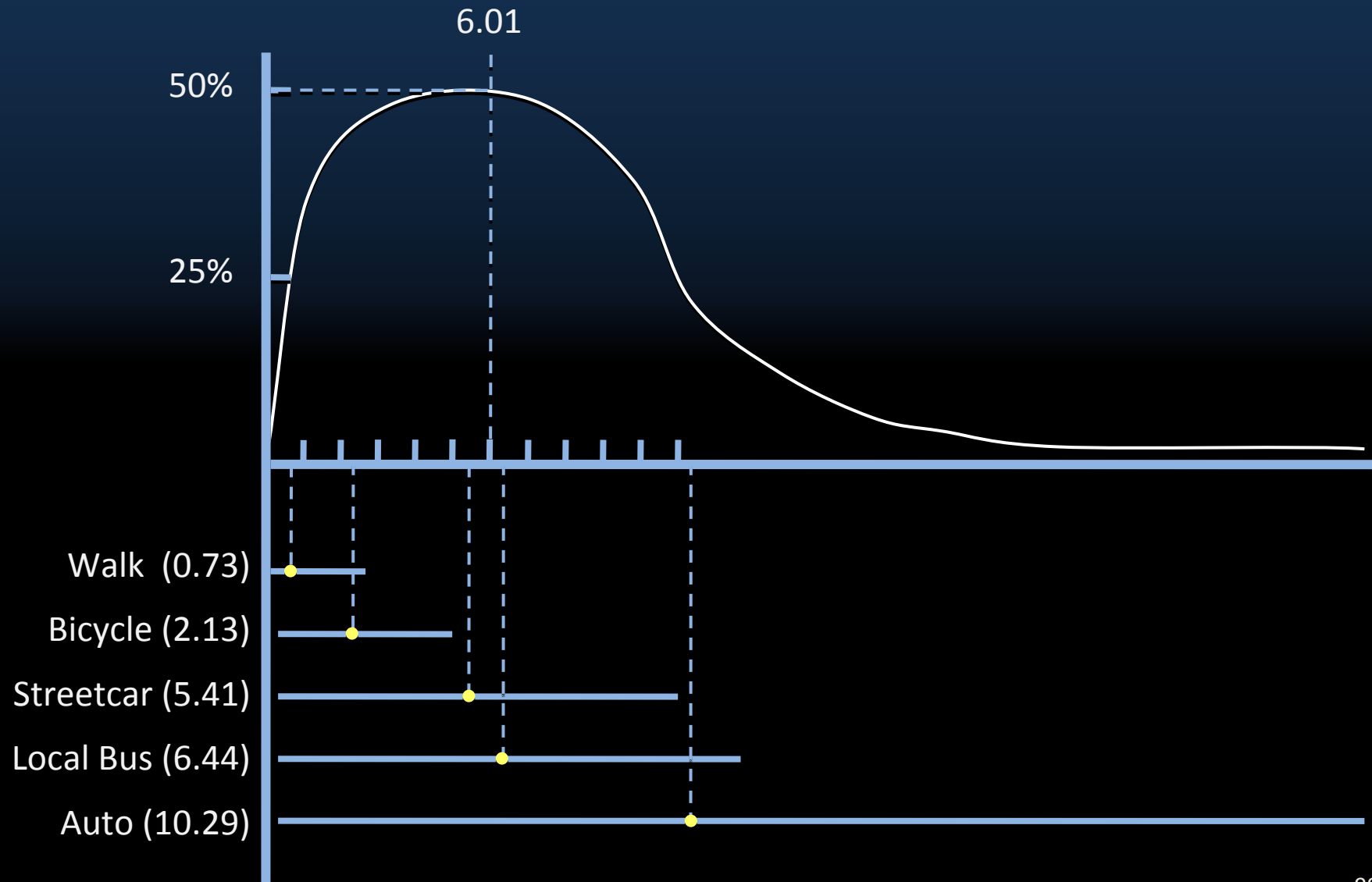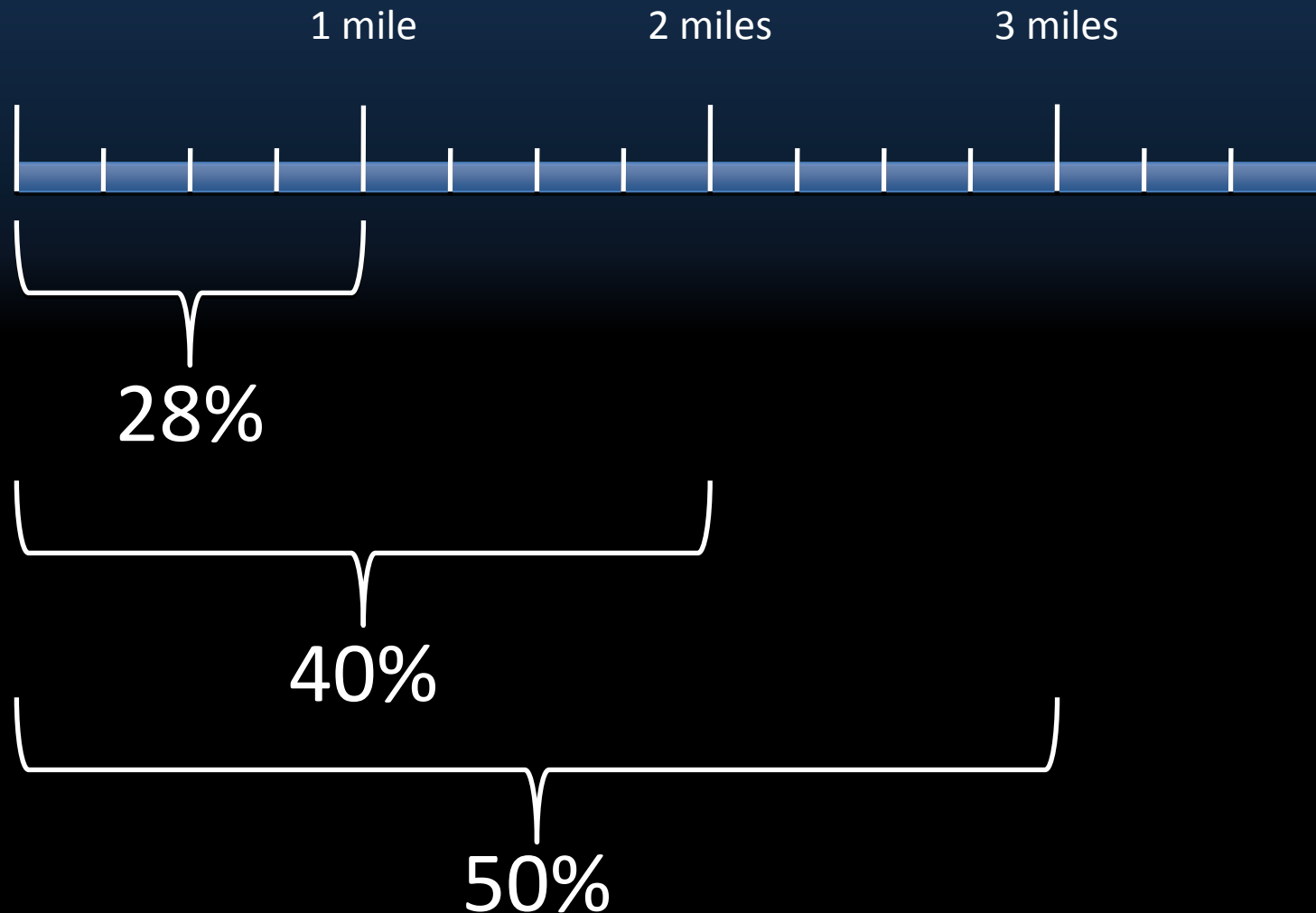
Trip Length – Driving Trips

1 mile   2 miles   3 miles

20%

33%

43%

"Mobility" =

Travel + Circulation + Access

Mobility

Livability

Location Efficiency

3 Key Concepts

Mobility

Livability

Location Efficiency
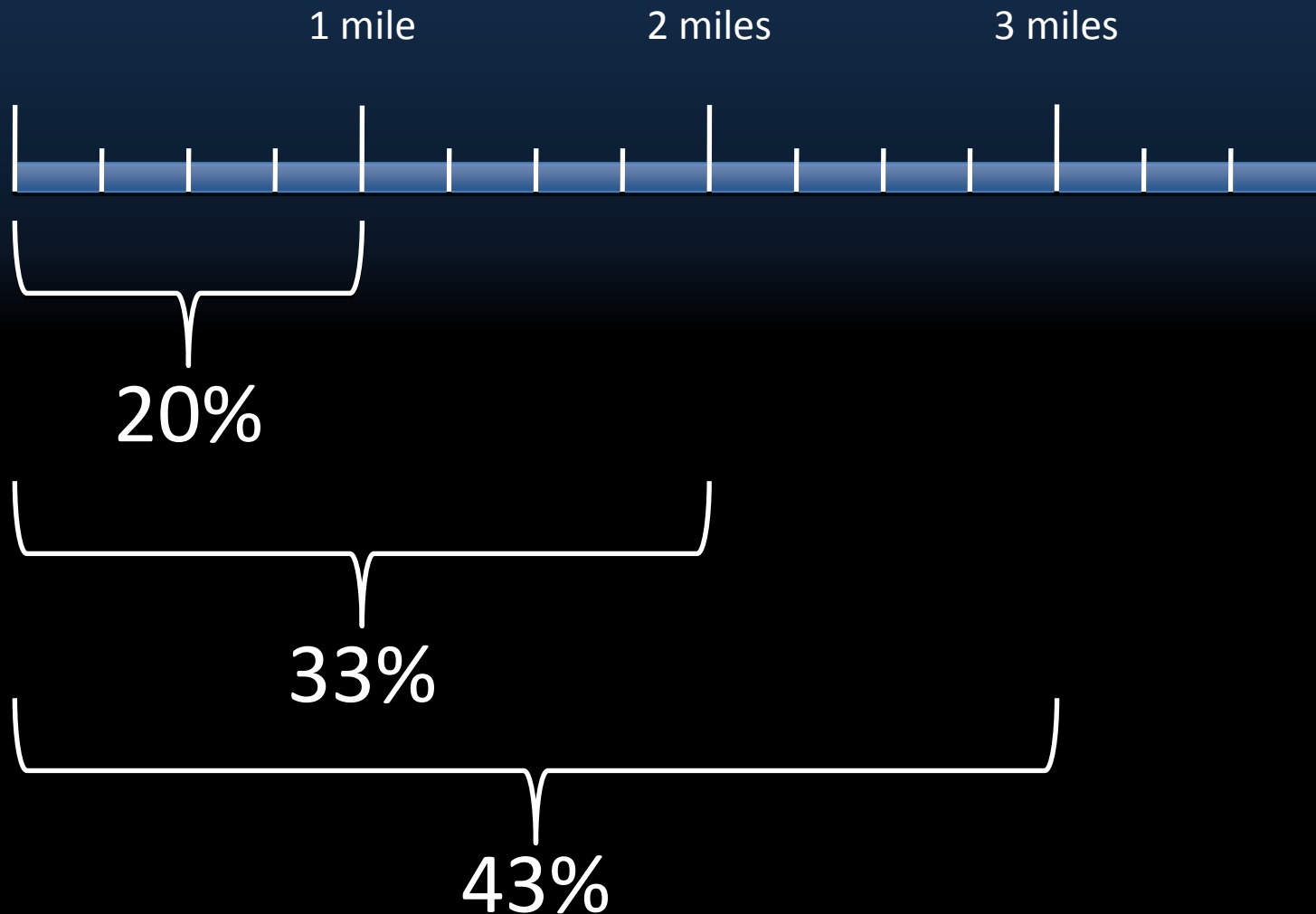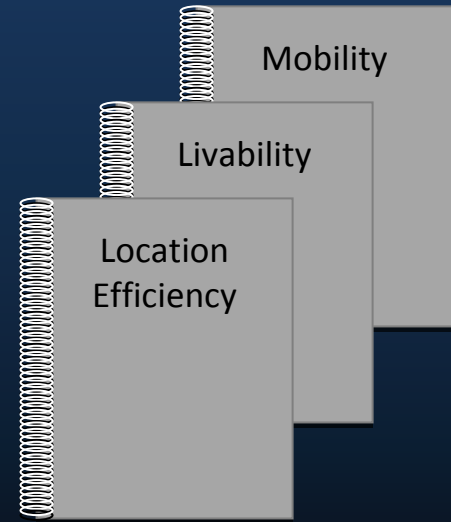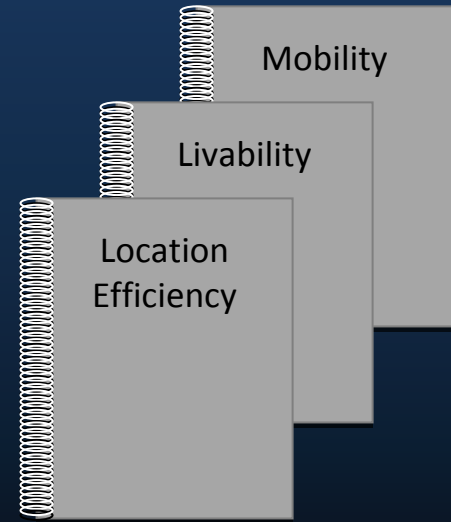
Emerging Federal Policy

Single Purpose Spending

Transportation Housing Public Health Environment Energy
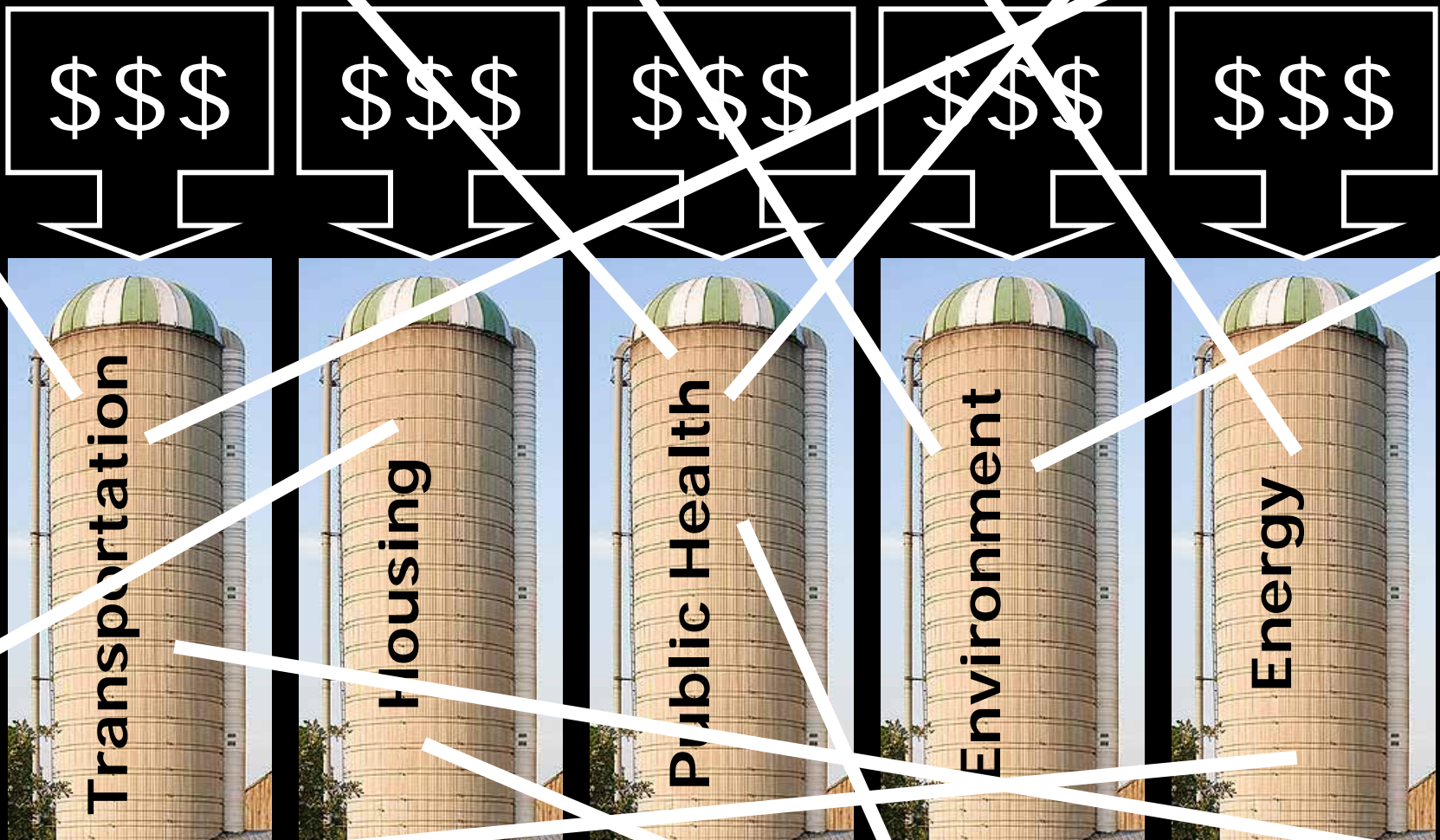
Integrated, Strategic Investment
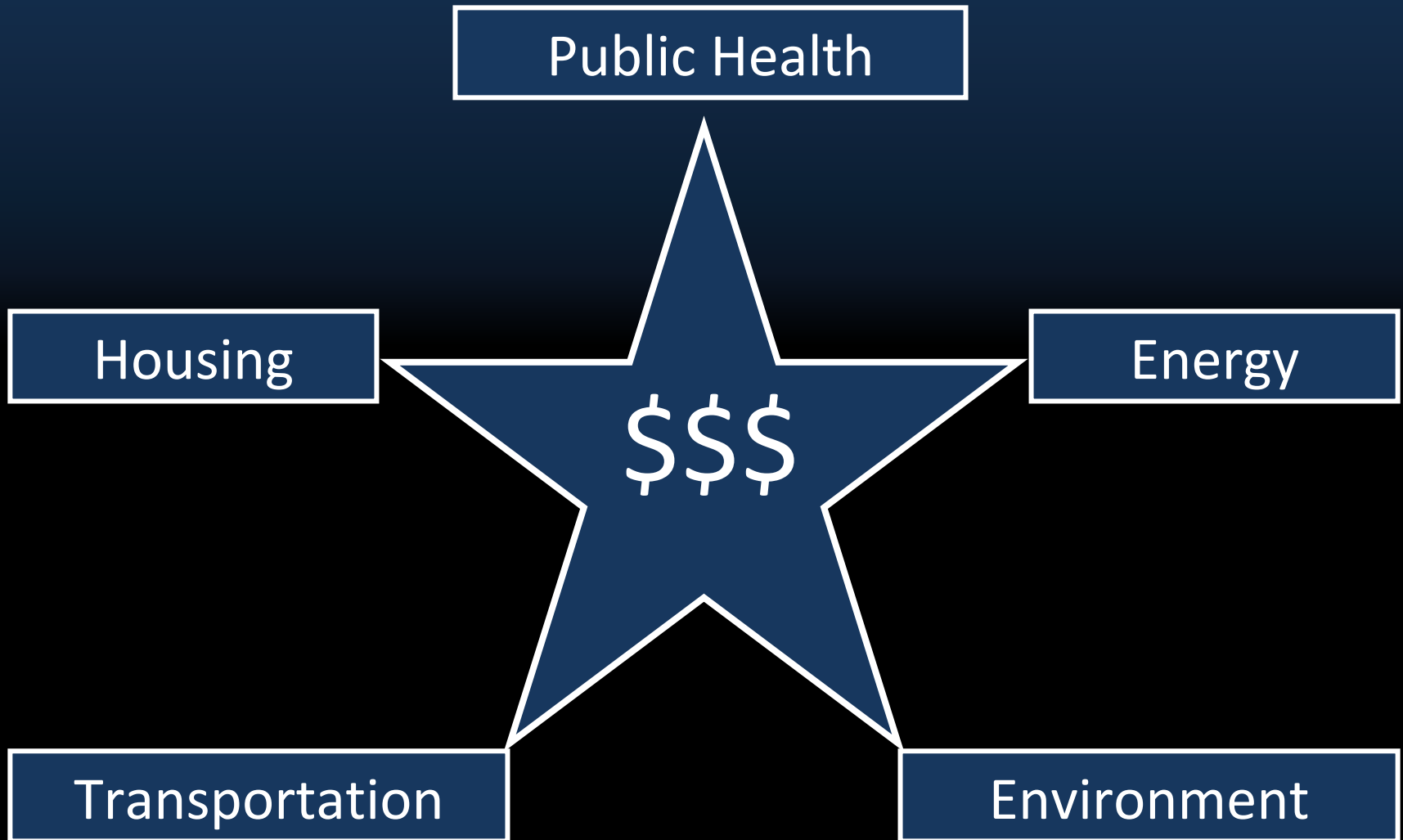
Interagency Partnership for Livable Communities

2

Learning from Senior Mobility

aging of the US population

% over 65 — 2010: 13%, 2020: 16%, 2030: 19%, 2040: 20%

% over 50 — 2010: 32%, 2020: 35%, 2030: 36%, 2040: 37%

Retirement Preferences

Suburban 19%

Rural 30%

Urban 51%
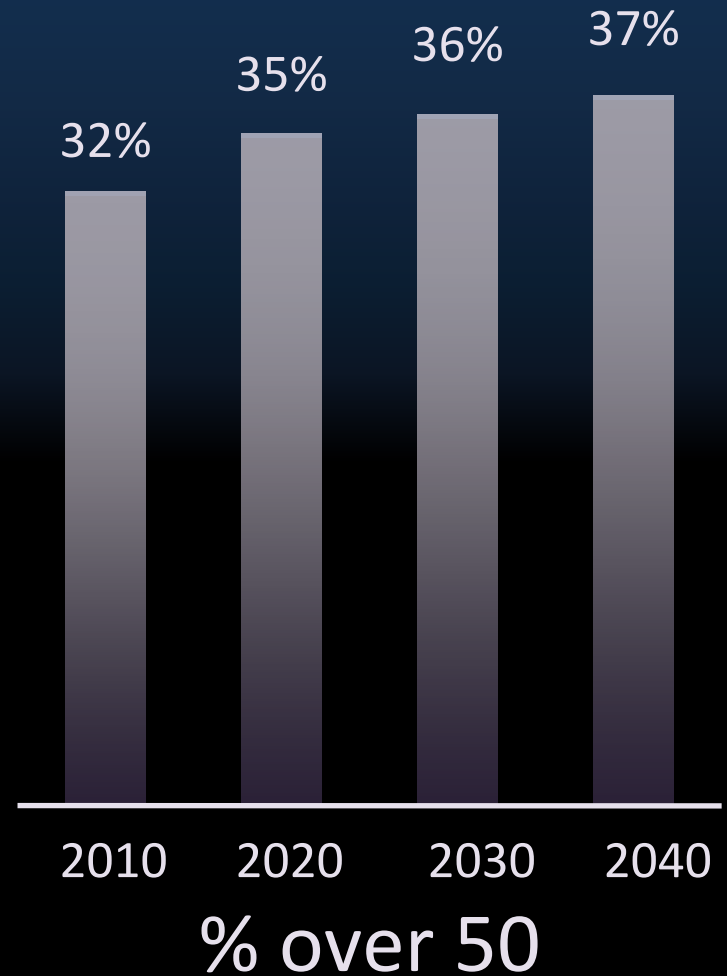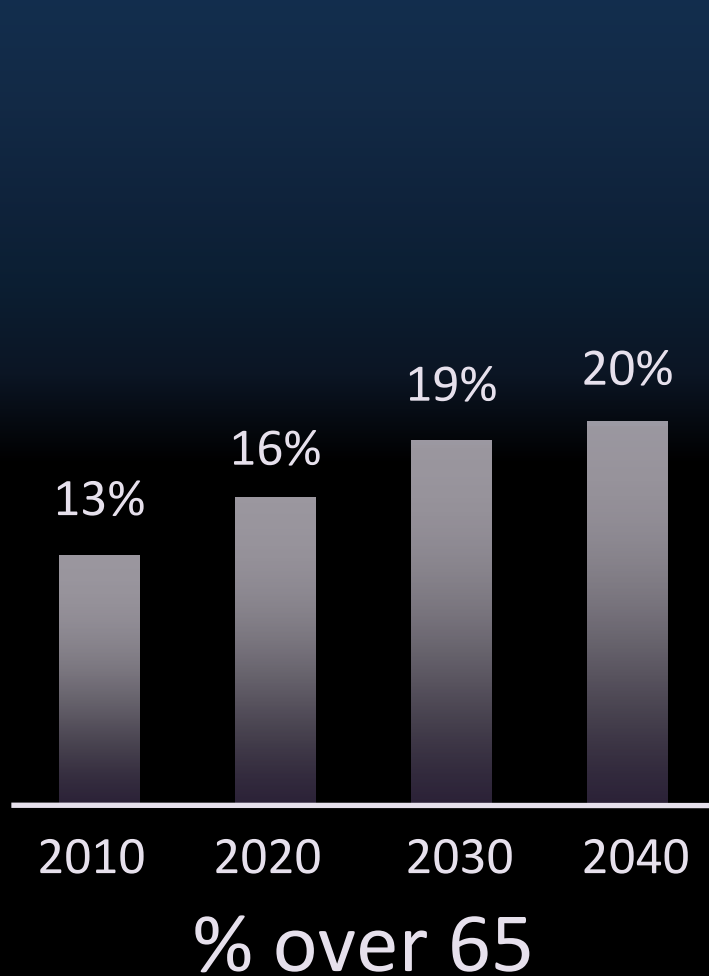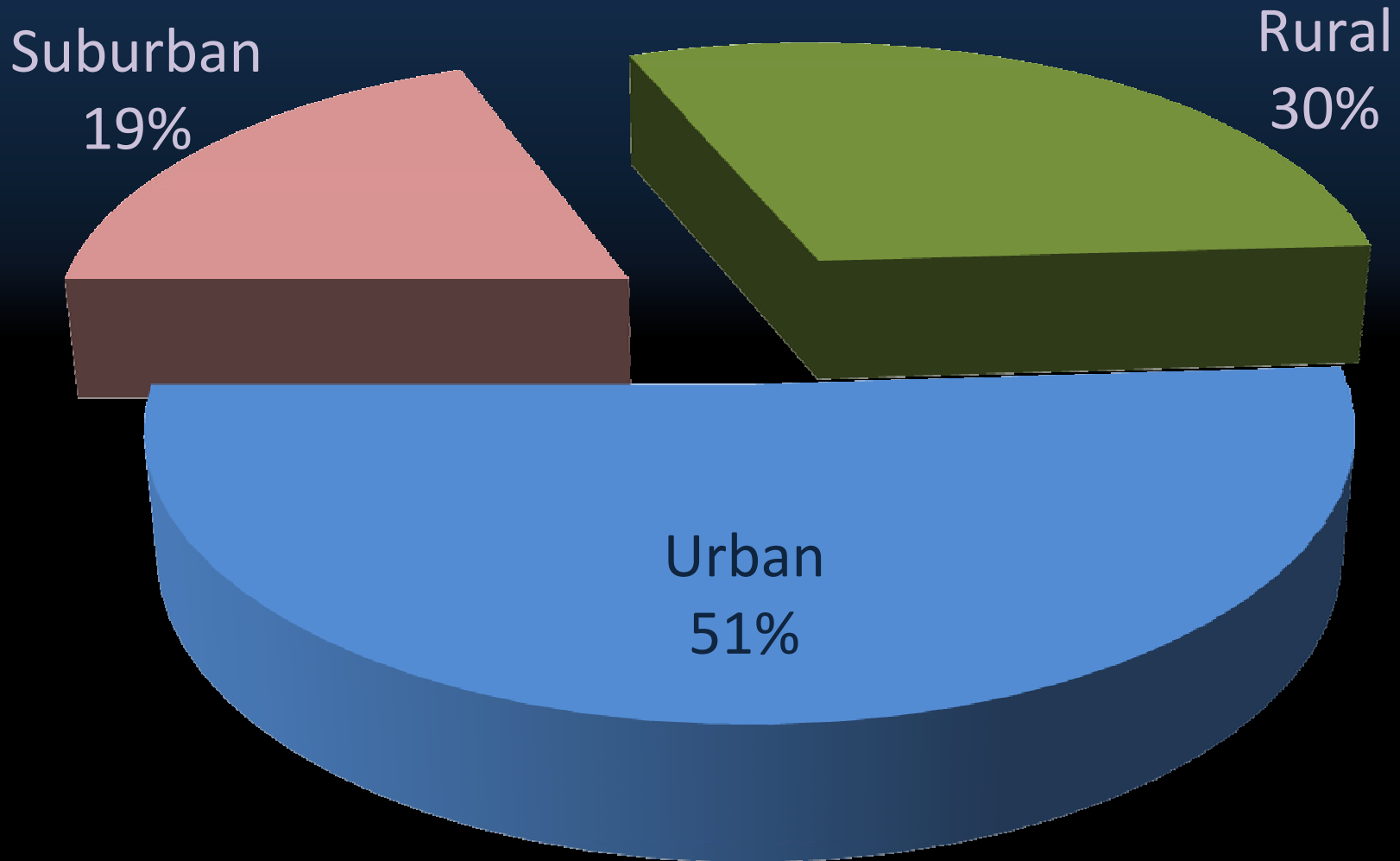
Source: National Association of Realtors and Smart Growth America American Preference Survey 2004

4 essentials: elder mobility

AARP: a livable community has…

- affordable & appropriate housing
- supportive community features & services
- adequate mobility options

…which together facilitate personal independence and the engagement of residents in civic and social life.

AARP livable communities model
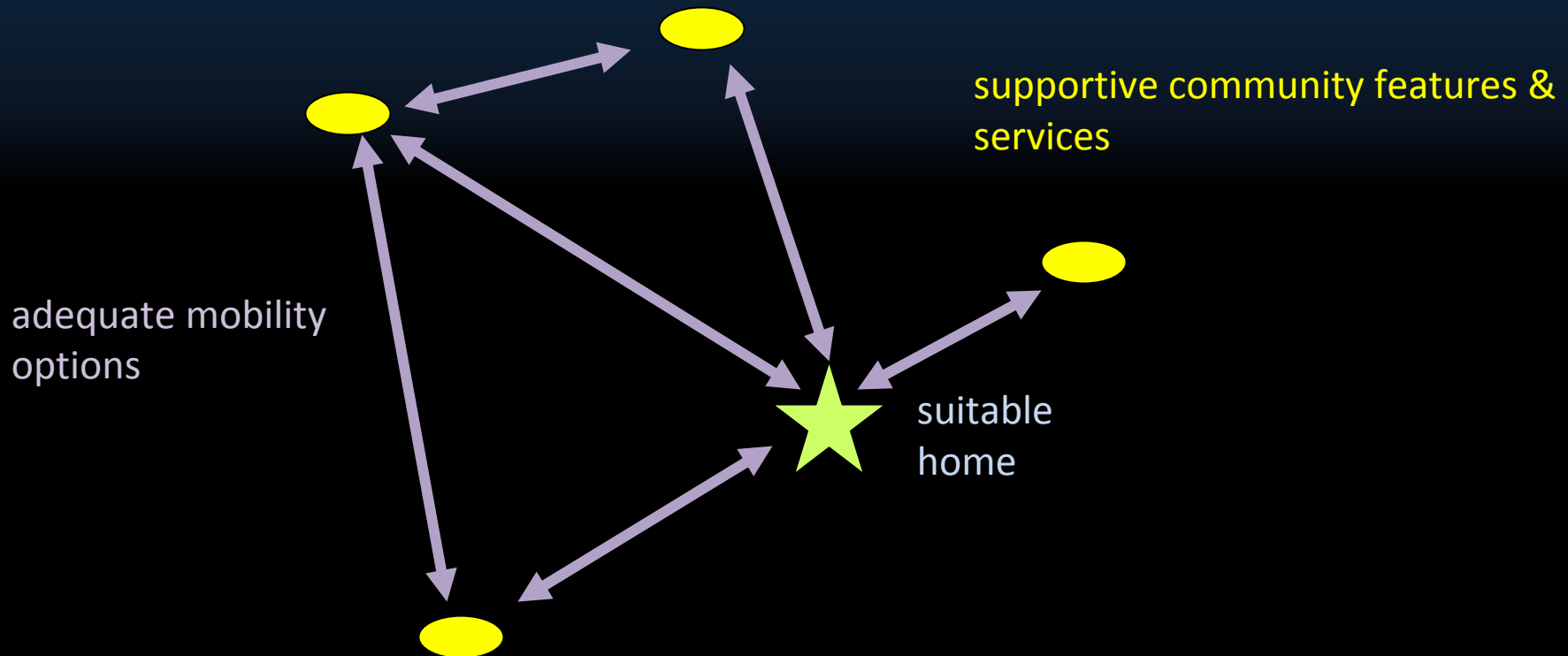
MARCELLA MANOR

4 essentials: elder mobility

- land use mix
- pedestrian supportive environment
- connected street network
- high frequency transit service

4 essentials: elder mobility

- land use mix
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land use mix

4 essentials: elder mobility

supportive community features & services

1. active living
2. third places
3. convenience retail
4. provisions & services
5. family
6. shopping
7. medical
8. cultural

1. active living

- pedestrian-oriented environments
- trails, parks and open space
- gyms and exercise facilities

2. third places

- coffee shops, cafes
- bookstores, libraries
- churches
- bars
- plazas, parks
- senior centers

3. convenience retail

- corner market
- convenience store

4. provisions & services

- grocery
- bank
- cleaners

5. family

- grandchildren
- other family

6. shopping

- hardware
- clothing
- book store
- optical
- electronics

7. medical

- clinics, doctors
- hospitals
- pharmacy
- physical therapy
- opticians
- other specialists

8. cultural

- theater
- movie Theater
- museums
- symphony
- art gallery
- restaurants

destinations

	daily	weekly	monthly
1. active living	X		
2. third places	X		
3. convenience	X		
4. provisions		X	
5. family		X	
6. shopping		X	
7. medical			X
8. cultural			X

destinations

	daily	weekly	monthly	
1. active living	X			
2. third places	X			
3. convenience	X			
4. provisions		X		
5. family		X		
6. shopping		X		
7. medical			X	
8. cultural			X	

should be within walking distance

destinations

	daily	weekly	monthly
1. active living	X		
2. third places	X		
3. convenience	X		
4. provisions		X	
5. family		X	
6. shopping		X	
7. medical			X
8. cultural			X

accessible by walking and fixed route transit

neighborhood completeness

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7'-0" CLEAR CRITTER UNDERPASS

TRANSIT STOP

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© FARR ASSOCIATES

A SUSTAINABLE NEIGHBORHOOD (BUILDING BLOCKS OF A SUSTAINABLE CORRIDOR

4 essentials: elder mobility

- land use mix
- pedestrian supportive environment
- connected street network
- high frequency transit service

note: ADA & universal design

elderly walking environment factors

- safety & security
- street crossings
- universal access
- street design – scale, speed
- pedestrian realm – scale, layout
- urban design – street walls, building scale
- land use mix
- trees, canopies, awnings

pedestrian survival rates & vehicle speed

ROADWAY CORRIDOR ❶

PEDESTRIAN REALM ❷

ADJACENT LAND USE ❸

back-of-curb

edge of R.O.W.

face of building

Charlier Associates, Inc.

ROADWAY CORRIDOR ❶

PEDESTRIAN REALM ❷

ADJACENT LAND USE ❸

back-of-curb

edge of R.O.W.

face of building

min. through walkway ❹

street crossings

sidewalk planting strip Ⓐ

sidewalk Ⓑ

setback zone Ⓒ

(furnishing zone in retail areas)

Charlier Associates, Inc.

ROADWAY CORRIDOR | PEDESTRIAN REALM | ADJACENT LAND USE

back-of-curb

edge of right-of-way

face of building

clear zone 8 ft. min.

on-street parking | planter/furniture zone — 4 ft. min. | pedestrian clear zone — 8 ft. min. | frontage zone — 2 ft. min.

14 ft. min. total recommended

Charlier Associates, Inc.

4 essentials: elder mobility

- land use mix
- pedestrian supportive environment
- connected street network
- high frequency transit service

Windsor, CO – Old Town

Windsor, CO – after 1990
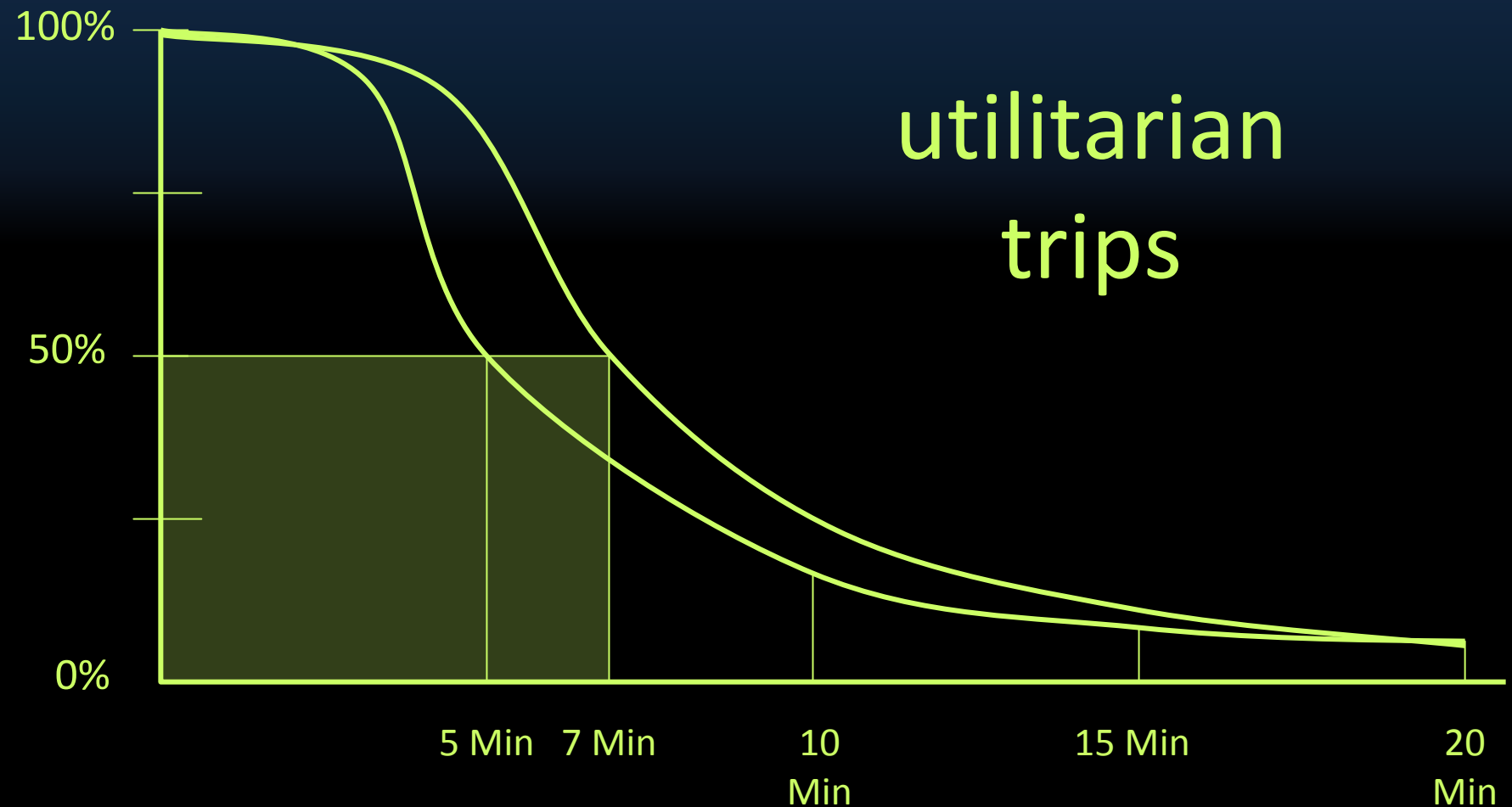
walk distances @ 250 fpm
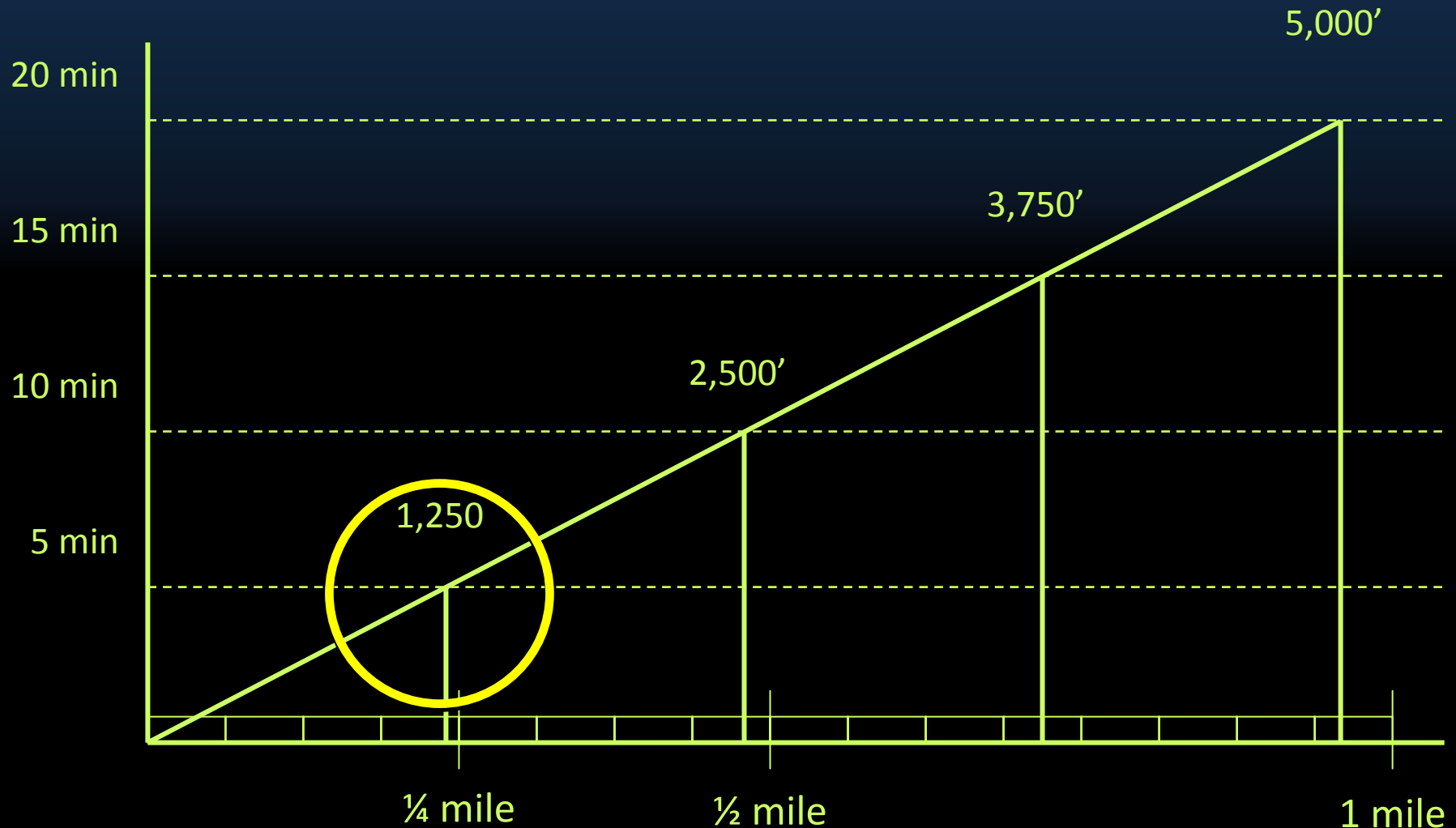
walk distances @ 100 fpm
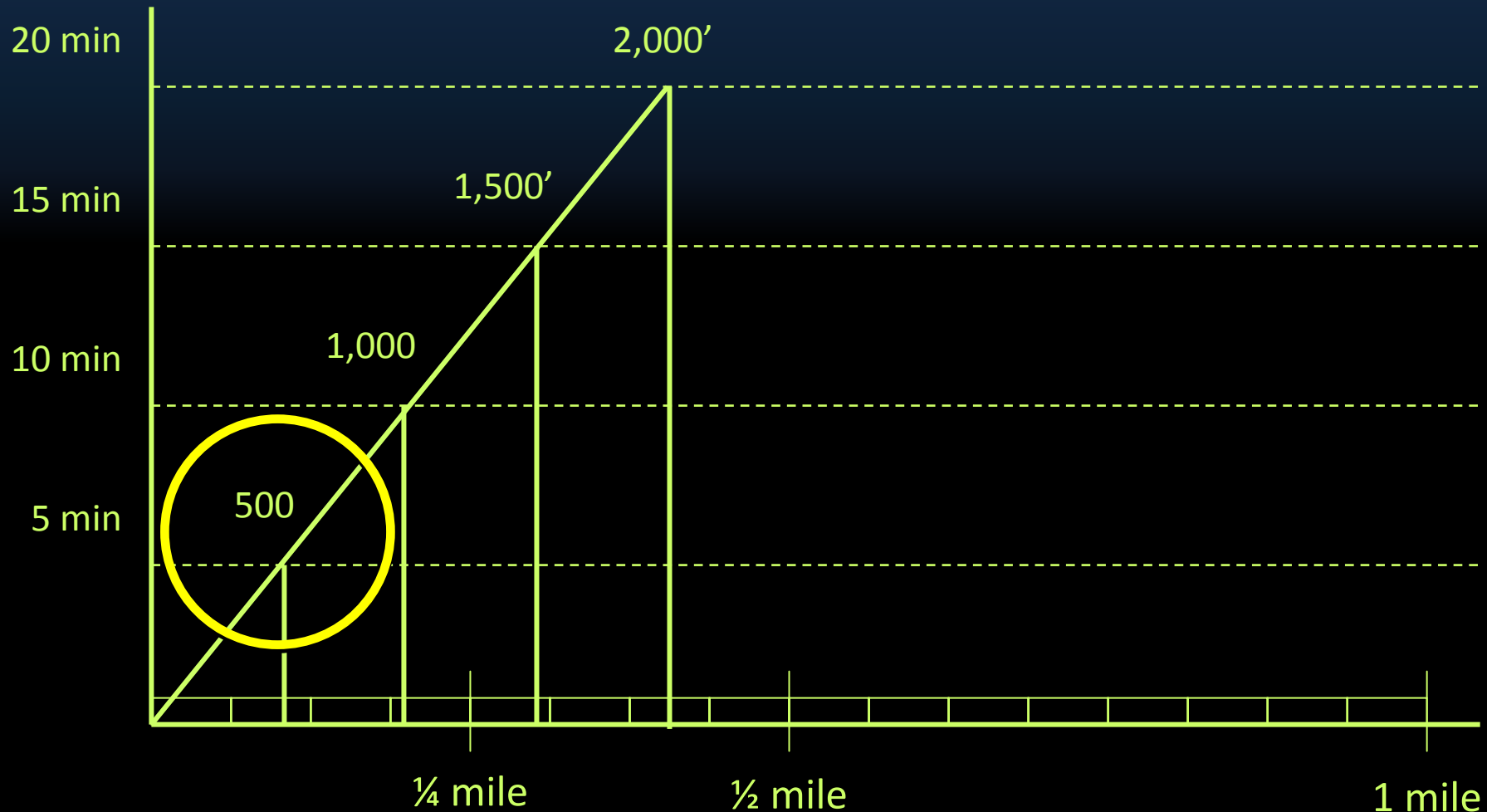
path index

shortest feasible route on streets & trails

$$\frac{\circ}{\circ}$$

straight line distance (as the crow flies)

2100 feet

500 feet

Path Index: 4.2

5 – 7 minute walk

home

1. active living

2. third places

3. convenience retail
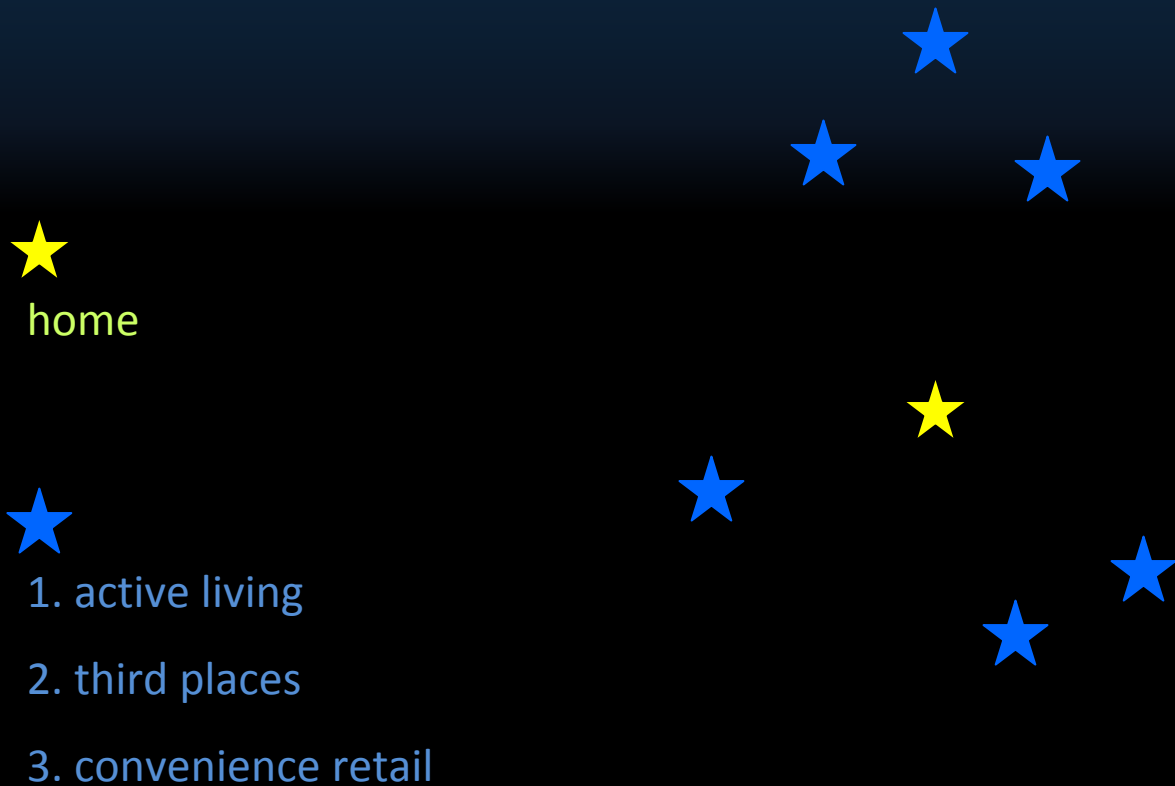
5 – 7 minute walk

path index:
1.4

home

1. active living

2. third places

3. convenience retail
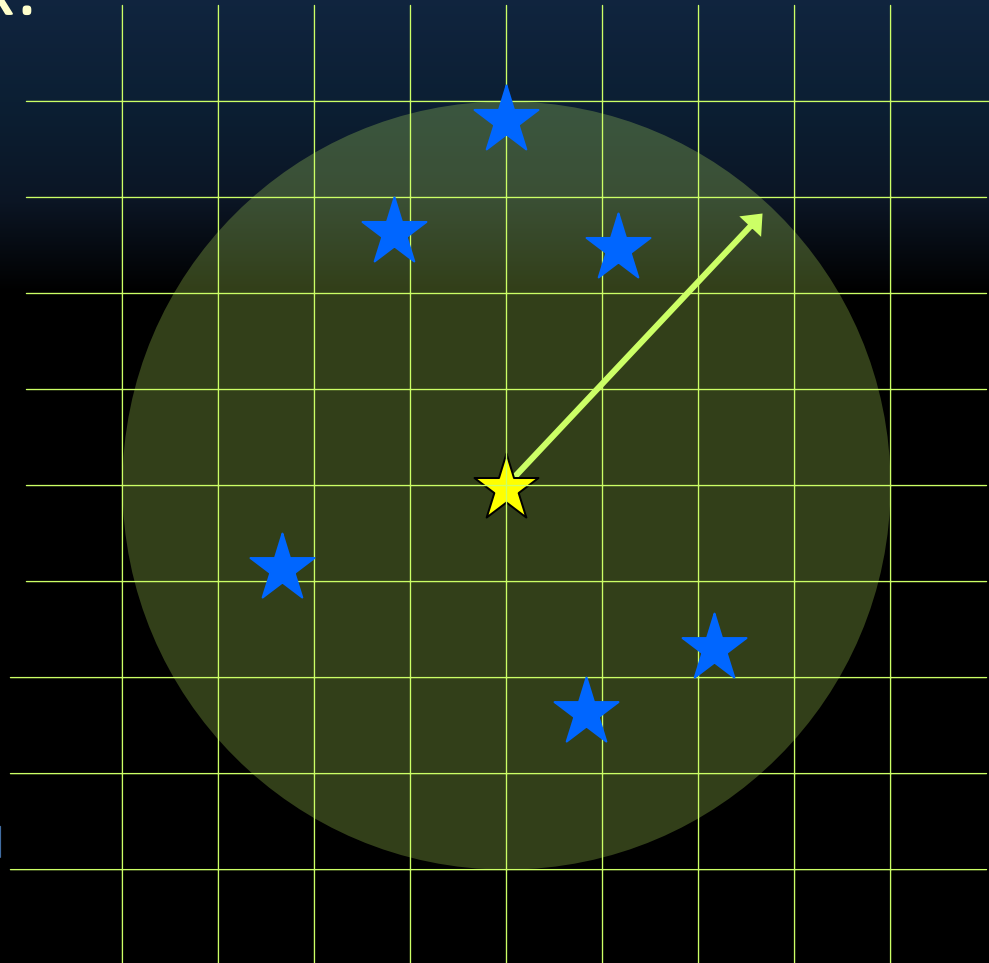
¼ mile

5 – 7 minute walk

path index:
4.5

★ home

★
1. active living

2. third places

3. convenience retail
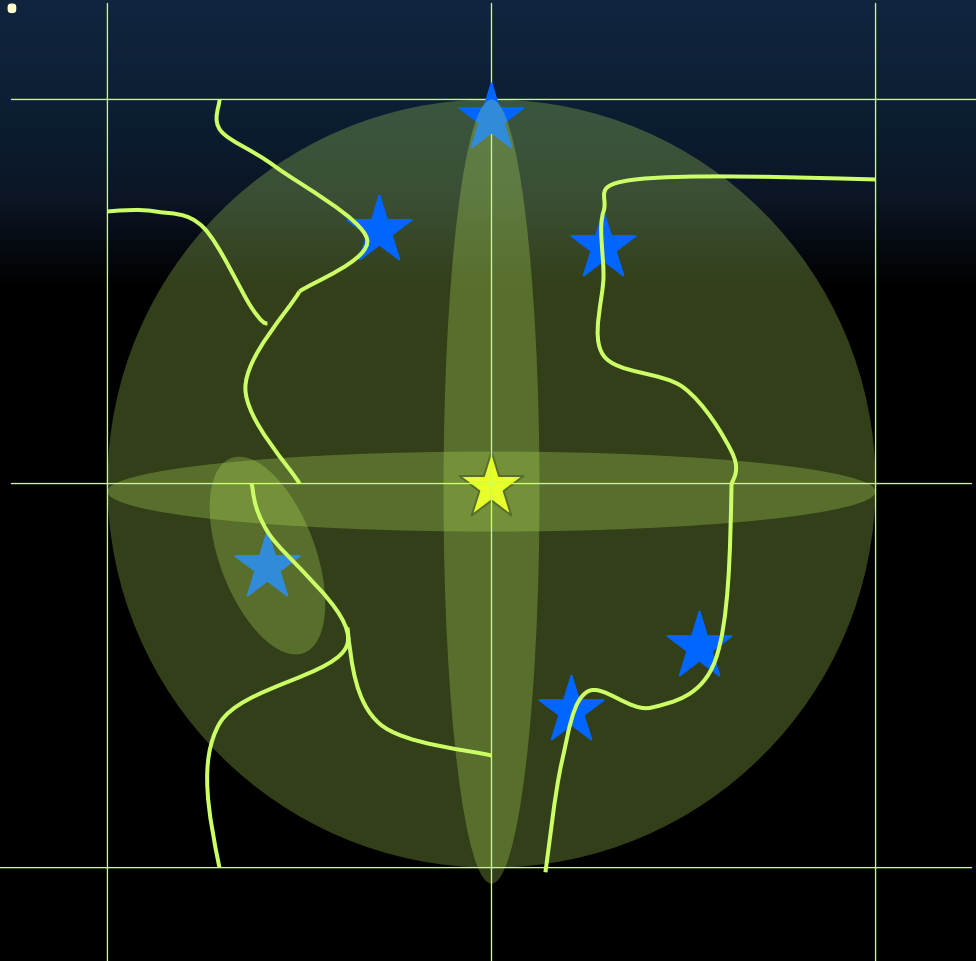
good connectivity expands the range of walking trips, increasing pedestrian activity

optimum block size for efficient traffic flow
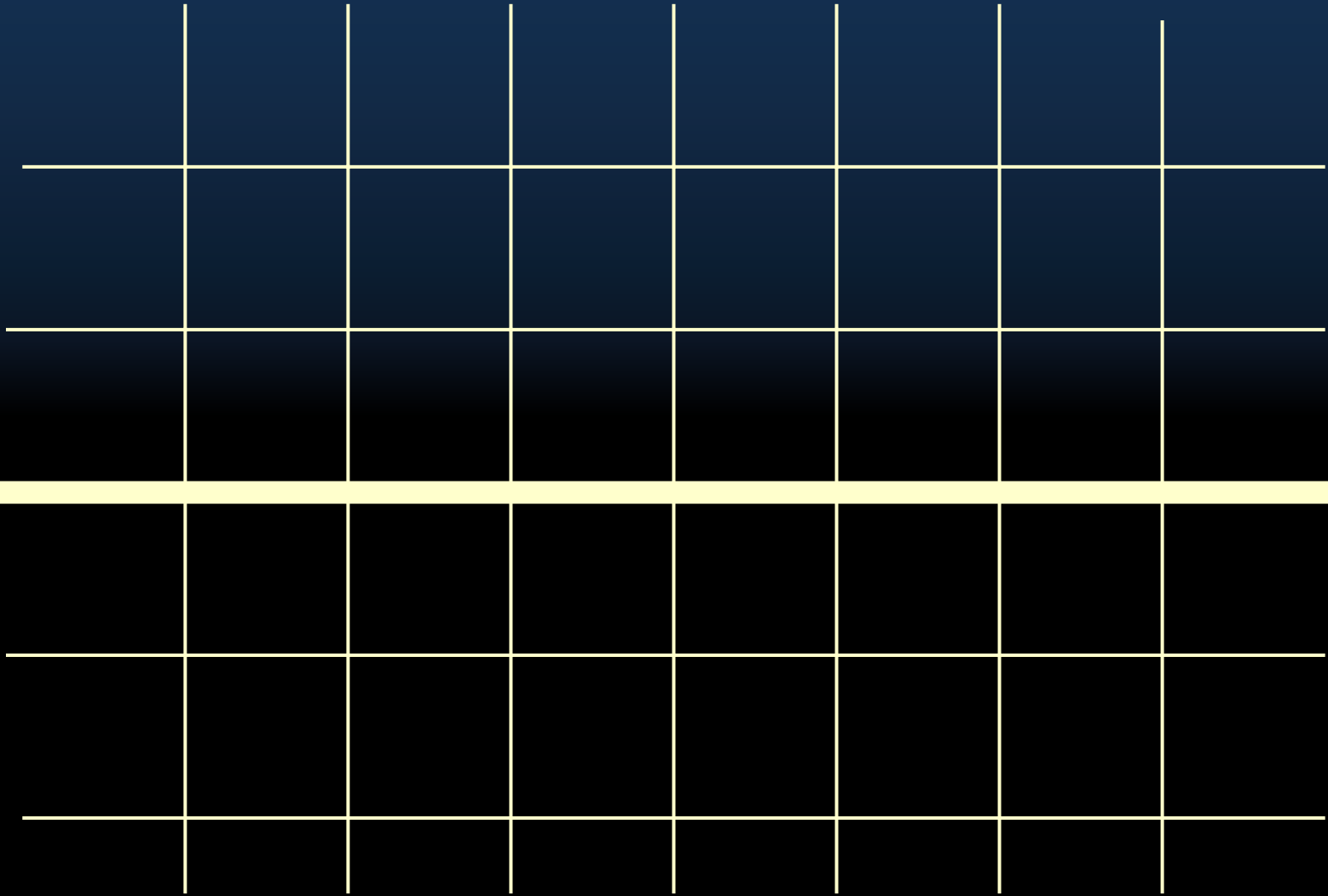
330' to 528'

common connectivity standards

- intersections/square mile (min 200)
- maximum block perimeter (1400' – 1800')
- block length (330' – 528')
- links/nodes

4 essentials: elder mobility

- land use mix
- pedestrian supportive environment
- connected street network
- high frequency transit service

high frequency transit networks

- peak service < 15 minute headways
- network of routes
- accessible vehicles
- easy access to stops and stations

boulder community transit network

community transit network
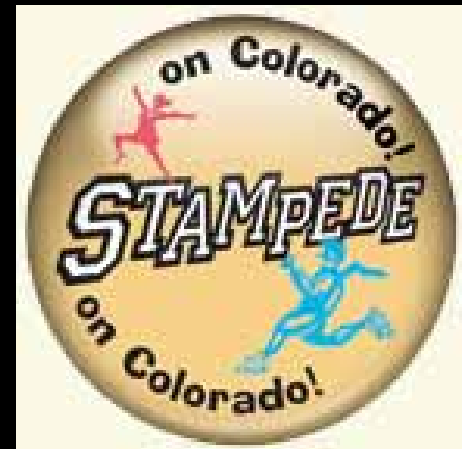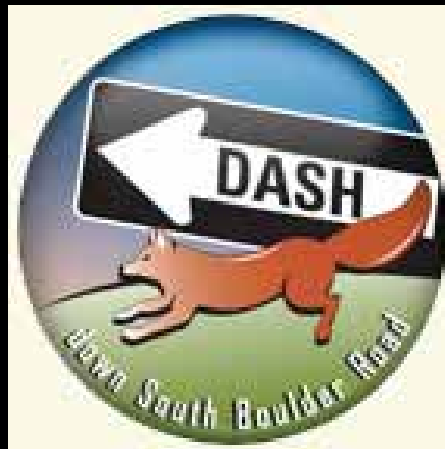
Portland, Oregon

example: Santa Fe "Elder Grace"
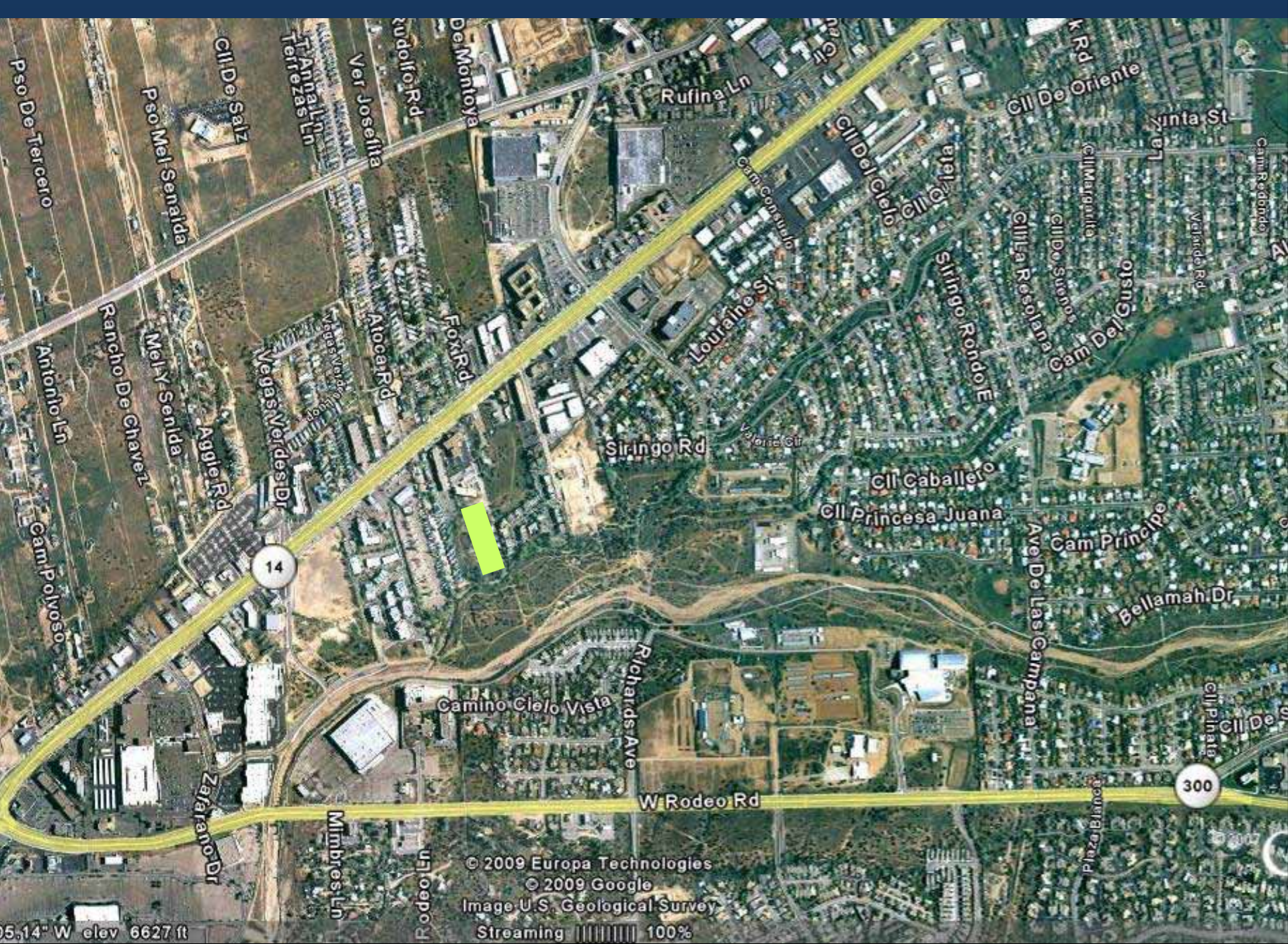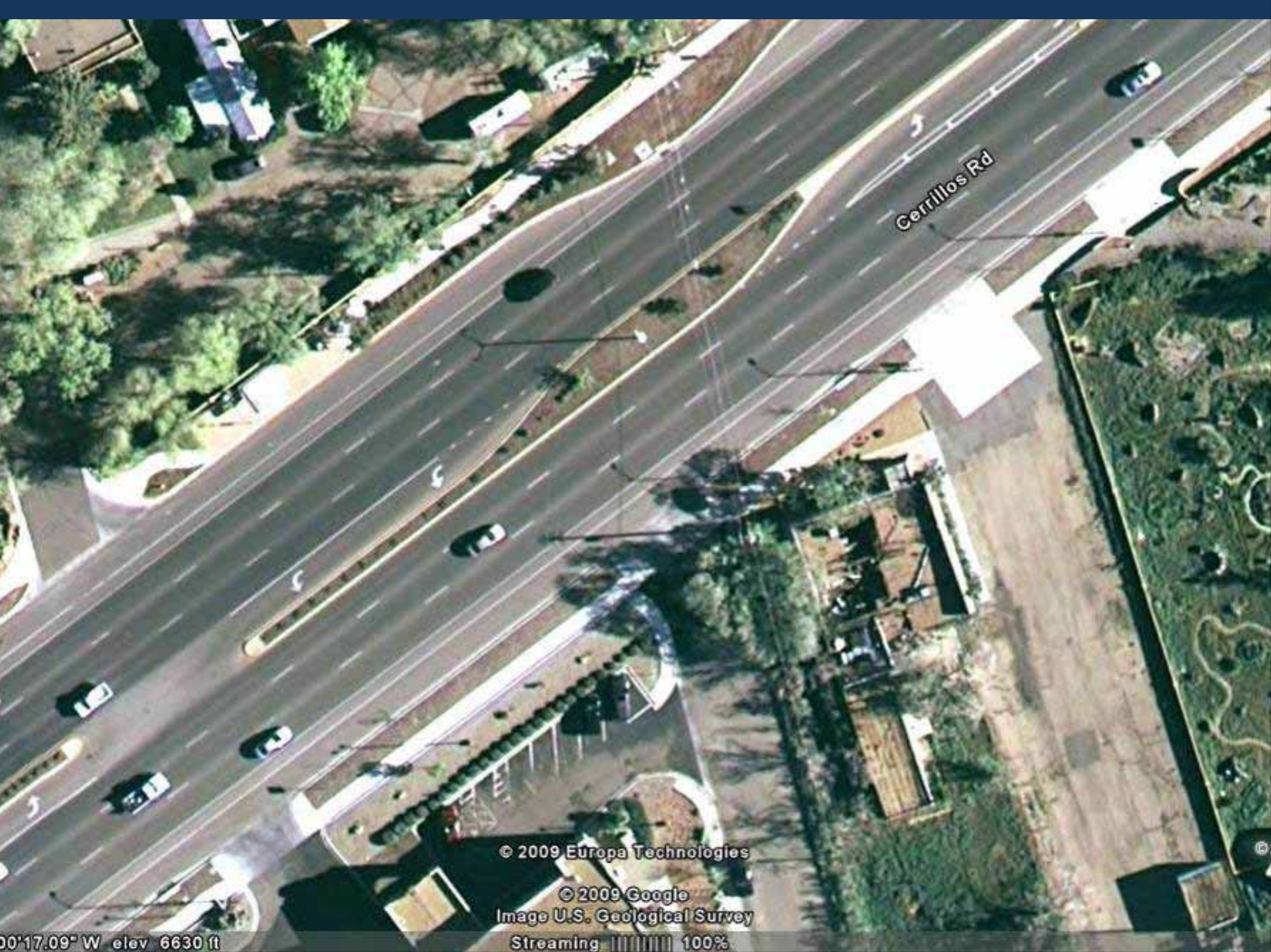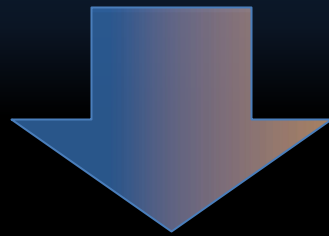
Cerrillos Rd

00'17.09" W elev 6630 ft

mobility criteria: ElderGrace

- mixed use development pattern – limited
- pedestrian supportive environment - no
- connected networks – no
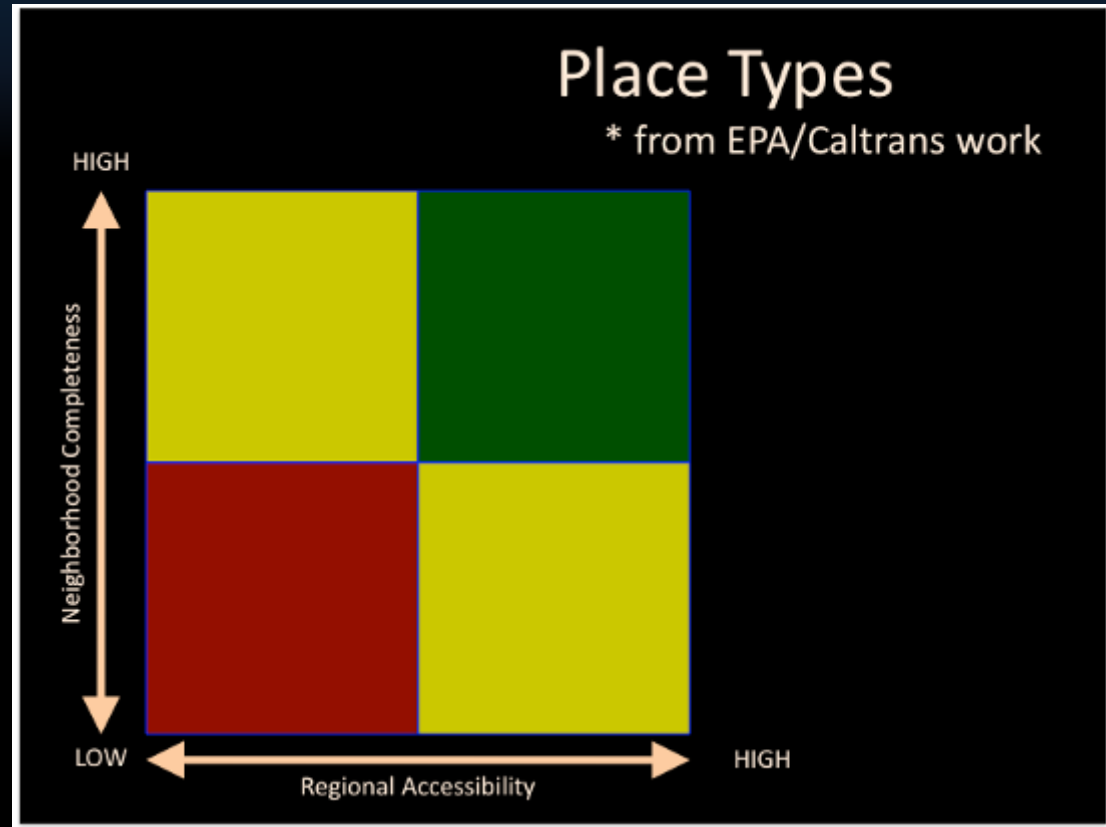- high frequency transit network - no

senior mobility

⬇

"universal mobility"

Not Included in Elder Mobility

- Access to schools (K – 12)
- Access to jobs

Place Types
* from EPA/Caltrans work

Wrap Up

"Location Efficiency" =

Complete Neighborhoods + Regional Access

"Livability" =
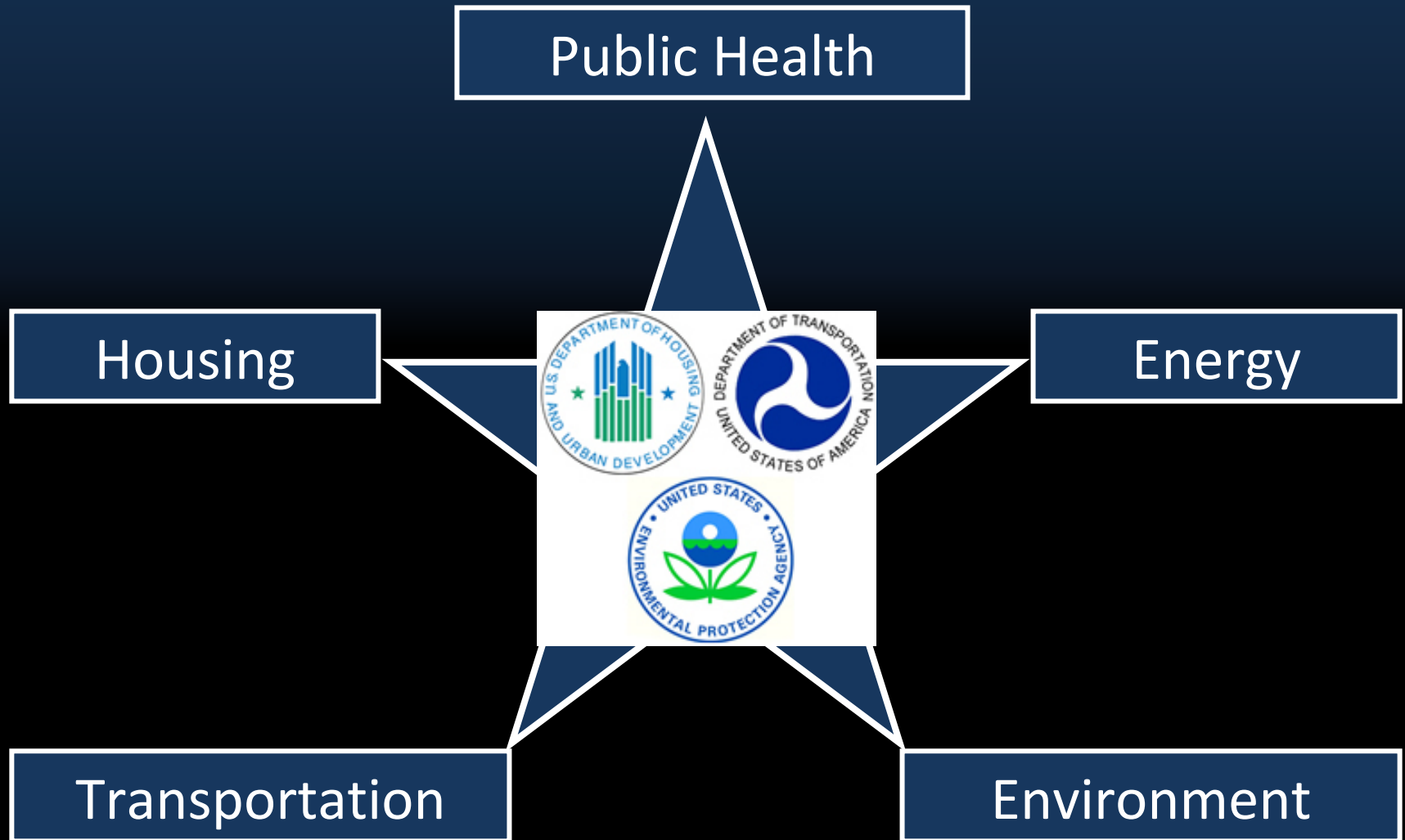
Affordable + Healthy + Opportunities + Identity

"Mobility" =

Travel + Circulation + Access

Integrated, Strategic Investment

Public Health

Housing

Energy

Transportation

Environment

Thanking You

Charlier Associates, Inc.

www.charlier.org